

**A. GENERAL INSTRUCTIONS**

1. This Addendum shall be attached to the front of the specifications, inside the front cover and shall be brought to the attention of all concerned.
2. Any additional costs shall be incorporated in the tender form.
3. Receipt of this Addendum shall be acknowledged on the tender form.
4. The following amendments shall be incorporated in and form part of the contract same as if these had been written into the original specifications.

**B. AMENDMENTS TO ADDENDA**

**Item No. 1 - Addendum No. 2, Amendments to Drawings**

- .1 Item No. 21: Revise to read: Drawing ~~M5.0.1~~ **M5.0.2** – Partial Basement/Crawlspace Piping South
- .2 Item No. 22: Revise to read: Drawing ~~M5.0.2~~ **Partial First Floor Piping Plan South M5.0.1 – Partial Basement / Crawlspace Piping North**
- .3 Item No. 26.2: Detail 12 – Sanitary Sump Pit Detail is required.

**Item No. 2 – Addendum No. 2, Amendments to Drawings, Item No. 7**

- .1 Drawing A5.2-R1
  - .1 Revise parapet detail 10 as per attached drawing A5.2-R5
- .2 Drawing A5.2-R2
  - .1 Revise parapet detail 11 as per attached drawing A5.2-R6.
- .3 Drawing A-5.2-R4
  - .1 Revise parapet detail 13 as per attached drawing A5.2-R7.

**Item No. 3 – Addendum No. 2, Amendments to Drawings, Item No. 9**

- .1 Exterior Construction Types for Wall Section
  - .1 Refer to Parapet Types, Parapet Type “P5”, revise to read as follows:  
SBS ROOF MEMBRANE  
FLEXBILE FLASHING MEMBRANE  
PARAPET BASE SHEET BOARD  
13 GLASS MAT GYPSUM SHEATHING  
92 ST. STUDS @ 400 O.C.  
BATT INSULATION  
13 GLASS MAT GYPSUM SHEATHING  
AIR SPACE  
13 GLASS MAT GYPSUM SHEATHING  
92 ST. STUDS @ 400 O.C.  
BATT INSULATION  
13 GLASS MAT GYPSUM SHEATHING  
PARAPET BASE SHEET BOARD

**B. AMENDMENTS TO ADDENDA - Continued**

**Item No. 3 – Addendum No. 2, Amendments to Drawings, Item No. 9 – Cont'd.**

- .1 FLEXIBLE FLASHING MEMBRANE  
SBS ROOF MEMBRANE
- .2 Refer to Parapet Types, Parapet Type "P6", revise to read as follows:  
SBS ROOF MEMBRANE  
FLEXIBLE FLASHING MEMBRANE  
PARAPET BASE SHEET BOARD  
13 GLASS MAT GYPSUM SHEATHING  
92 ST. STUDS @ 400 O.C.  
BATT INSULATION  
SHEET AIR/VAPOUR BARRIER  
CONC. WALL  
SHEET AIR/VAPOUR BARRIER  
BATT INSULATION  
64 ST. STUDS @ 400 O.C.  
13 GLASS MAT GYPSUM SHEATHING  
PARAPET BASE SHEET BOARD  
FLEXIBLE FLASHING MEMBRANE  
SBS ROOF MEMBRANE

**C. AMENDMENTS TO SPECIFICATIONS**

**Item No. 1– Section 00 01 10 – Table of Contents**

- .1 Add to Division 07 – Thermal and Moisture Protection  
"Section 07 95 13 – Expansion Joint Assemblies.....3"

**Item No. 2– Section 00 41 00 – Bid Form**

- .1 Replace pages 7 and 8 with attached pages 7 and 8 marked Addendum No. 5

**Item No. 3 - Section 01 24 04 Separates**

1. Revise 1.6.1 to now read as follows:  
".1 Separate Price No. 1  
.1 Supply of all luminaires.

**Item No 4 - Section 01 22 10 Contract Unit Prices**

1. Provide a separate Unit Price for each of the following luminaires (supply and installation). Include the Unit Price to Add and Unit Price to Delete.

Luminaire Types: A, B, C, F, K, L, M, and P

**C. AMENDMENTS TO SPECIFICATIONS - Continued**

**Item No. 5 – Section 07 44 56 – Mineral Fiber Reinforced Cementitious Siding**

- .1 At 2.1.3, Revise “102 mm” to read as “64 mm”.

**Item No. 6 – Section 07 95 13 – Expansion Joint Assemblies**

- .1 Add section pages 1 to 3 marked Addendum No. 5.

**Item No. 7 – Section 09 06 01 – Room Finish Schedule**

- .1 Add:

ROOM NO.	ROOM NAME	FLOOR		BASE		NORTH			EAST			SOUTH			WEST			CEILING			HEIGHT
		MAT	COL	MAT	COL	MAT	FIN	COL	MAT	FIN	COL	MAT	FIN	COL	MAT	FIN	COL	MAT	FIN	COL	
L101	Corridor	SF	1	RB	2	-	-	-	MDF GB	P P	2 2	MDF GB	P P	2 2	MDF GB	P P	2 2	AT	3	-	2250

**Item No. 8 - Section 22 11 16 – Domestic Water Piping**

- .1 Item 2.3 – Stainless Steel Piping and Fittings: Special permission to use stainless steel piping is required by authority having jurisdiction. Contractor to confirm with engineer if intending to use stainless steel piping. Acceptable by AHJ is not guaranteed.

**Item No. 9 - Section 23 05 93 – Testing, Adjusting, and Balancing for HVAC**

- .1 Delete item 3.7.1.2. (Pump impeller not required to be trimmed, desired flow to be set with variable speed drive.)

**Item No. 10 - Section 23 21 13 – Hydronic Piping**

- .1 Item 2.4.3, 2.4.4, and 2.4.5: Detail 22 on drawing M7.2 shows which equipment is to be supplied with a Coil Piping Kit, with automatic flow control valve as per specification section 23 21 13.2.8.2.2. All other balancing valves shown on the plans should be manual balancing valves.

**Item No. 11 - Section 23 25 00 – HVAC Water Treatment**

- .1 Item 3.3.1: Bypass around equipment to be left in place, see Detail 22 on drawing M7.2.

**C. AMENDMENTS TO SPECIFICATIONS - Continued**

**Item No. 12 - Section 23 73 13 – Indoor Central-Station Air-Handling Units**

- .1 Item 2.2: Add the following:
  - 2.2.11 Add lights in all fan and access sections. Each light to be factory wired to its own light switch located on the exterior of the cabinet.
  - 2.2.12 All drain pans to be stainless steel.

**Item No. 13 - Section 23 82 13 – Radiant Heating Panels**

- .1 Add the following to item 2.1:
  - 2.1.4 Radiant panel output to be based on 82°C (180°F) entering water 1°C (20°F) water temperature drop.

**Item No. 14 - Section 26 32 13 – Emergency Power Generation**

1. Revise 1.8 to read "...written guarantee (including parts and labour) signed...".
2. Revise 2.2.15.1.5 to read " '90% full', '95% full', and low level float switches to indicate fuel level. The low level float switch shall indicate "low fuel" on the emergency generator remote annunciator. The '90% full' and '95% full' float switches shall illuminate '90% full' and '95% full" indicator lights at a remote final tank level indicator module at the remote fill box. The remote fuel tank level indicator module and associated wiring shall be provided by the electrical trade.

**Item No. 15 - Section 26 50 01 Luminaire Schedule**

1. Add luminaire type K1:

TWO LAMP COMPACT FLUORESCENT WALL SCONCE WITH OPAL ACRYLIC LENS, TAMPERPROOF HARDWARE, INACCESSIBLE LAMP AND BRUSHED CHROME FINISH.  
SCOTT #S3315-2C26E-BC (2-26W)  
FC #FCWS7168B-E-BA (2-26W)  
LIGHTWAY #BDFW-24-A-A-2Q26-P2 WSA  
ECLIPSE #MEFB-XL-(2)26W-120-EB-PNA- (26W QUAD)  
C/W 2-26W QUAD TUBE 4-PIN AMALGAM LAMPS, 120V.

**Item No. 16 - Section 26 36 23 Automatic Transfer Switch**

1. Add the following to 2.1.1:

"- complete with bypass isolation  
- Four pole switching design (switched neutral)"

**C. AMENDMENTS TO SPECIFICATIONS – Continued**

**Item No. 17 - Section 27 15 00 Communications Horizontal Cabling**

1. Add:
  - 1.6 Prairie North Health Region Cabling Specification
    - .1 Reference the attached documents for specific IT requirements:
      - Prairie North Health Region Cabling Specification V1.0
      - PNRHA Data Jack Labelling Standard
      - PNRHA Patch Cable Color Standard
      - PNRHS Rack and Panel DetailCoordinate communications horizontal cabling with PAPHR IT representative:  
Contact Tyler Hines (306)820-6060 ext. 6195
  2. Revise 2.2.3 to Floor Mounted Data Cable Termination Cabinet (Quantity of 4 in crawlspace).
  3. Revise 2.2.3.1: "Full size floor mounted cabinet (1220H x 762W x 813D) ... APC #AR3104.
  4. Revise 2.2.3.3: Rack shall be complete with 48 port 1U high-density Category 6 ... Hubbell #UDX48E1U or approved equal.

**Item No. 18 - Section 27 52 24 Nurse Call System**

1. Revise 2.3.9 to "The patient bed station shall be Rauland Responders #R4K22A (dual inputs) complete with one #CCDIN call cord.

**Item No. 19 - Section 27 52 25 – Wandering Resident Monitoring System**

1. Revise 1.5.2 to read "...locks on doors when a resident...."
2. Revise 1.5.4 to read "...door locks if the resident activates exciter field at door."
3. Revised 2.5.1 Acceptable manufacturers: Code Alert, Roam Alert or approved equivalent."

**Item No. 20 - Section 28 31 00 Fire Alarm System**

1. Revise 2.8 to read '...The audible portion of the device shall consist of a speaker with a frequency range of 400 HZ – 4000 HZ. The speaker shall have power taps which are selected by rotary switch (1/4, 1/2, 1, and 2 watts).
2. Revise 2.8.3 to read ' The speaker stroke shall be System Sensor #SP5V complete with synchronization module to match existing (signal tone to match existing).'
3. Add:
  - 2.14 FIREFIGHTERS' MICROPHONE
    1. A flush mounted Firefighters' Microphone cabinet shall be located adjacent to the remote fire alarm system annunciator. The handheld microphone shall provide one-way communication to the fire alarm speakers throughout the facility.

**C. AMENDMENTS TO SPECIFICATIONS – Continued**

**Item No. 20 - Section 28 31 00 Fire Alarm System – Cont'd.**

2. The fire fighters' microphone shall be Honeywell #RM-1 Series in a flush mount CAB-RM Series cabinet.

**D. AMENDMENTS TO DRAWINGS**

**Item No. 1 - Drawing A2.1**

- .1 Concrete Housekeeping pads (2) added as shown on attached drawing A2.1-R1. Location to be verified with Electrical Contractor.

**Item No. 2 - Drawing A2.5**

- .1 Add Roof Expansion Joint location and detail 8 as per attached drawing A2.5-R2
- .2 Plan details added at roof parapet. See attached drawing A2.5-R3 for locations.

**Item No. 3 - Drawing A6.1**

- .1 Add Floor expansion joint detail 22. Locate at Gridline 26 at both Basement and First floor. See attached drawing A6.1-R2

**Item No. 4 - Drawing A6.2**

- .1 Revise Plan Detail 16 to include wall expansion joint. Wall expansion joint Detail 25 added at Grid LL2 & 26 . See attached drawing A6.2-R2
- .2 Revise Plan Detail 17 & 23 to include wall expansion joint. See attached drawing A6.2-R3
- .3 Plan details 26 & 27 added at parapet. See attached drawing A6.2-R4.

**Item No. 5 - Drawing A5.1, A5.2, AA6.1, A6.2**

- .1 Clarification of cement board trim sizes.  
All inside corner cement board trim to be 25mm x 140mm. All battens to be 25mm x 64mm. Trim around doors and windows to be 25mm x 140mm (except at front entry curtain wall – horizontal trim at head to be 25mm x 184mm ). All horizontal trim bands to be 25mm x 184mm. Vertical location on wall: Bottom edge of horizontal trim bands to remain the same, adjust top edge only.

**Item No. 6 – All Structural Drawings – General Note**

- .1 Add – 150 thick concrete pad under all weeping tile sump pits. Refer to mechanical drawings for size 7 locations.

**D. AMENDMENTS TO DRAWINGS - Continued**

**Item No. 7 – Drawing S1.0.0 – Demolition Plan**

1. Detail 3- Provided joint at main floor as per attached drawings S-2.3.3-R1.
2. Plan 1, existing sump to remain as is. No modifications required to pit or cover plate.
3. Remove concrete basement wall at new opening, to allow for cast in place expansion joint. Provide water-stop on floor and wall connections. Grout smooth transition between existing slab, wall and new construction.

**Item No. 8 – Drawing S2.2.1 & S2.2.2 & S2.2.3 – General Notes**

1. Provide 2500 x 4100 x 150 thick conc. housekeeping pads on crawl space floor between grid lines 10 & 11 south of grid D1, and north of E2. Reinforce with 10M @ 300 o/c each way @ mid depth. Verify location with Electrical Contractor.
2. Provide 800 x 1100 x 100 thick conc, housekeeping pads on crawl space floor on grid line 12, north of D1 & 2 pads between grid lines 9 & 10, north of grid D1. Reinforce all 3 pads with 10M @ 300 o/c each way @ mid depth. Verify location with Electrical Contractor.
3. 16 piles marked P8 are exterior piles at man door slabs to be revised to P-8U for uplift pile.
4. Top of pile caps in crawl space to be 7400.
5. Revise pile cut offs at pile caps to 6900 (single, double, triple) and 6700 (quad).
6. Elevations of u/s column base plate shown on foundation plans = 8140, u.n.o.
7. Revise offset of quad pile group & pier & C7 from 2744 to 2800 off of grid 9 (adjacent to match line).

**Item No. 9 - Drawing S2.2.1 Partial Foundation Plan – North**

- .1 At 3A Helix Pile Notes
  - .1 Note 1. Change note 1 – Bearing stress below 6.0m depth should be 200 kpa Not 350 kpa.
  - .2 Note 4. Change note 4 – Report No S10-7460 should be No S10-7396
- .2 Add 2-P2 piles to support main floor housekeeping pad, see S5.5-R2. P.C.O. = 8900.

**Item No. 10 – Drawing S-2.2.3 – Partial Foundation Plan – East**

1. Provide 100 housekeeping pad for mechanical and electrical equipment. Refer to plan 8/M6.0, E2-0.1 & E2-0.2.
2. Pile caps under concrete columns t/o cap = 6650. P.C.O. = 6150
3. Revise P.C.O. for quad pile cap on grid 22 to 5700.
4. Provide P-8U pile at door 119a mandoor.
5. Add 2-P4 piles, 900mm east of grid 25, one each side of tunnel in line with other tunnel piles, to support tunnel at expansion joint.
6. Add sump pit in mechanical room, see mechanical for size & location.

**D. AMENDMENTS TO DRAWINGS - Continued**

**Item No. 11 - Drawing S2.3.1 & S2.3.2 & S2.3.3 – General Notes**

1. Columns bearing at perimeter G.B. or wall u/s base plate = 10040 u.n.o.
2. Mechanical vent penetrations through main floor not shown for clarity. Refer to drawing M4.0.4/4.0.2 for locations and sizes. Provide metal deck reinforcements as per specifications. Where not, provide L102x102x6.4 angle each side of opening. Extend to top chord of joist and fully weld to joist with butt weld. Tack weld angle to decking as per spec.
3. Sloped topping areas not shown on plan. Coordinate with architectural plan A2.3.1/.2/.3 for dimensions and elevations.

**Item No. 12 – Drawing S2.3.1 – Partial First Floor Plan – North**

1. Column C7 of grid 15, u/s B.Pl. = 9890. Centre of C7 at 144 off of grid 15.
2. Provide separated slab 1000x1600 supporting washer & dryer. Separate from base slab on deck with 20mm gap. Refer to S5.5-R2 for reinforcing, dimensions and elevations.

**Item No. 13 – Drawing S-2.3.2 – Partial First Floor – South**

1. Move column C2/BP2A located on grid line J2 between 17 & 20, 170mm east. Revise dimension 5150 to 4980.
2. Add detail for sliding door track in topping. Refer to detail 22/S5.2-R3, 3 locations.

**Item No. 14 – Drawing S-2.3.3 – Partial First Floor – East**

1. Refer to S2.3.3-R2 for new 4500 square structural slab to be located at entry to Kingsmere Villa bearing on top of new tunnel roof.
2. Detail 4/5 to be coordinated with detail 9/10/11 on A1.1 for connections of railing and handrail.

**Item No. 15 – Drawing S-2.4.2**

1. Confirm size & location of roof hatch @ grid lines 20 & G2 with Architectural.
2. Move column C2/BP2A located on grid line J2 between grids 17 & 20, 170mm eastward and make OWSJ at that point a tie joist.
3. Detail 3, Elevation of grid F2, extend grade beam 400 eastward of grid 25, extending 400 beyond pile.

**Item No. 16 – Drawing S-2.5.1**

1. Provide column bracing at 8 locations on upper roof, refer to 8/S5.2.
2. Note dimensions and offsets of C7 columns noted on foundation and main floor plans.

**D. AMENDMENTS TO DRAWINGS - Continued**

**Item No. 17 – Drawing S-5.2**

1. Detail 13, angle for openings to be attached to u/s of decking as per spec. Form u/s of angle to required depth by socket supplier.
2. Detail 14, refer to S5.2-R1 for additional braces & plates for columns.
3. Provide reinforced mounting for dock seals as per attached S5.2-R2
4. Reference to ADD # 2, drawing A5.2-R1. Supply 2-L102 x 102 x 4.8 angles and install to under side of W200 link beam as shown. Site weld to u/s of W200 with plug welds @ 375 o/c. Intall1 btm angle tight to u/s of existing wood deck & weld to upper angel with 4mm x 25mm fillet weld @ 375 o/c. Do not secure angle to wood deck.
5. Reference to ADD # 2, drawing S5.2-R2. Supply L102 x 102 x 4.8 angle and bolt to face of concrete wall, tight to u/s of existing wood deck. Use 12 x 127lg wedge anchors spaced @ 450 o/c. Do not secure angle to wood deck.

**Item No. 18 – Drawing S-5.3**

1. Detail 13, at centerline of beam.
2. Detail 14, joist seat 132 at centerline of beam.
3. Detail 20, column is 144 off grid 15 and 2800 off grid 9.
4. Provide lateral bracing for sliding door, headers 2 locations RM 143. (143B & 143C). Supply brace to roof system to match stud framing spacing. Design to provide lateral support at lead of sliding door. Refer to details 26/S5.3-R1 & 27/S5.3-R2.
5. At RM 142 sliding door 142C and 142B, provide HSS header at top of door. Frame onto steel studs as per detail S5.3-R3. Dimensions to be verified with Arch dwgs and door supplier.

**Item No. 19 – Drawing S-5.4**

1. Detail 12, Refer to M5.0.3 for spacing and elevations of frames.
2. At Section # 4
  1. Provide 75x5x1500 lg. bent metal strap at top of pile. Shave pile sides to accommodate strap & anchor with 2-16mm x 125 lg lag bolts each side.
3. At Timber Pile Schedule
  - .1 Change note from refer to 3/S5.4 to similar 4/S5.4

**Item No. 20 – Drawing S-5.5**

1. Add concrete beam, B109, 250x400 deep, 2-20M T&B, 10M stirrups @ 200 o/c.

**D. AMENDMENTS TO DRAWINGS - Continued**

**Item No. 21 - Drawing M4.0.1 – Partial Basement / Crawlspace HVAC Plan North**

1. Detail 2: AHU-2 Section: Provide lights in all fan and access sections. Provide access door to multizone damper sections, complete with light. Typical for AHU-A to AHU-E. See note this addendum.

**Item No. 22 - Drawing M6.0 – Mechanical Room**

1. Detail 1 – Mechanical Room and s(M6.0)r1, Detail 1 – Mechanical Room Revision (Addendum #3):
  - .1 Delete note on condensate receiver tank. Condensate vent line to rise up 2400mm above finished floor, and outlet to discharge into funnel and drop down to floor drain.
  - .2 150mm steam relief valve to vent to atmosphere. Extend 1800 above roof level.
  - .3 Flash tank is shown just left of steam PRV.
2. Detail 7 – HX Section: Mount Heat exchangers on 1100mm high pipe stand, see note on detail 1 on drawing M6.0.
3. Detail 9 – Mechanical Room Floor Drain Plumbing: Revise detail as shown on attached drawing s(M6.0)r2. Mechanical room floor drains to drain to new sanitary sump complete with pump P-19. Provide sump pit as per Detail 12 on drawing M7.2, located between the heat exchangers.
4. Add Detail 10 – Tunnel FD Piping: Provide new FD-3 in basement tunnel as shown on attached drawing s(M6.0)r2.

**Item No. 23- Drawing M7.0 – Schematics**

1. Detail 3 – Heating Piping Control Schematic:
  - .1 LPS line after PRV to be 150mm.
  - .2 Vent line off LPS to pressure relief valve an up to atmosphere to be 150mm.
  - .3 All steam traps to be sized for two times (2\*) the incoming steam load.
2. Detail 4 – Chilled Water Piping & Control Schematic:
  - .1 Provide circuit balancing valve on discharge of P-7.
  - .2 Glycol fill pump to be identified as P-12.
  - .3 Delete Pressure Switch control for glycol fill pump. Pump to be controlled by manual switch.

**Item No. 24 - Drawing M7.1 – Details 1/2**

1. Detail 9 – Glycol Fill System Detail: Delete Pressure Switch control for glycol fill pump. Pump to be controlled by manual switch. Detail is typical for P-11 and P-12.
2. Detail 10 –Condensate Receiver Tank Detail: Revise vent dimension from 1200 to 2400mm above finished floor. Outlet to discharge into funnel and drop down to floor drain.

**D. AMENDMENTS TO DRAWINGS - Continued**

**Item No. 25 - Drawing M7.2 – Details 2/2**

1. Add Detail 12 – Sanitary Sump Pit Detail (Detail deleted in Addendum #1).

**Item No. 26 - Drawing M8.1 – Schedules 2/2**

1. Air handling unit information with “Unit Tagging” as “AHU-A-E” and “AHU-A-E-MZ” to be typical for AHU-2, AHU-3, AHU-4, AHU-5 and AHU-6.
2. Pump Schedule: Add the following: P-19, Mechanical Room, Sanitary Sump, 3.79 l/s, 44.8 kPa, 0.3 kW, Myers Model #ME-40, float control.

**Item No. 27 - Drawing E2-0.1 – Crawlspace - North – Electrical**

1. Provide and install a 120V circuit for lighting in each AHU. Each air handling unit (AHU-2 (circuit H-50), AHU-3 (circuit J-62), AHU-4 (circuit J-64)) will require 10 connections. Luminaires and switches supplied by mechanical.

**Item No. 28 - Drawing E2-0.2 – Crawlspace - South - Electrical**

1. Provide and install a 120V circuit for lighting in each AHU. Each air handling unit (AHU-5 (circuit K-62), AHU-6 (circuit K-64)) will require 10 connections. AHU-1 will require 9 connections. Luminaires and switches supplied by mechanical.

**Item No. 29 - Drawing E2-0.3 – Crawlspace - Link – Electrical**

1. Pumps 16 and 17 are located immediately west of 002 Electrical Room.
2. Provide and install a 120V circuit for lighting in AHU-1. The air handling will require 9 connections (circuit M-24). Luminaires and switches supplied by mechanical.
3. Locate emergency duplex receptacle (circuit EG-40 labeled on drawing as P-13) to accommodate sump pump P-19.
4. Provide and install adjustable frequency drives for pumps P-1 to P-9 in the emergency motor control centre MCC#E1.

**Item No. 30 - Drawing E2-0.3 – Electrical Room**

1. It is acceptable to provide and install “2EDP#1” and “T-E1” as separate equipment in lieu of integral in the distribution lineup.

**Item No. 31 - Drawing E2-0.3 – Motor Control Schedule**

1. Revise starters for pumps P-1 to P-9 to AFD supplied by Division 26.

**D. AMENDMENTS TO DRAWINGS - Continued**

**Item No. 32 - Drawing E2.1.1 – Main Floor Plan - North – Lighting**

1. Connect two type N luminaires in Community Room (centre row luminaires 2 and 5) (circuit F-02b) to unswitched emergency power circuit EF-09.
2. Connect the two type D luminaires in Chapel southeast and southwest corners to unswitched emergency power circuit EF-09.
3. Revise type K luminaires in House A only to type K1.

**Item No. 33 - Drawing E2.2.1 – Main Floor Plan - North - Power and Communications**

1. All receptacles in 137 Housekeeping are to be GFI protected.

**Item No. 34 - Drawing E2.2.2 – Main Floor Plan - South - Power and Communications**

1. Add grounding as indicated in attached sketch S(E2-2.2)r1.

**Item No. 35 - Drawing E2.3.2 – Main Floor Plan - South - Systems**

1. Add door hold-opens at doors L101a/L101b (north end of link) to be controlled by door access system.
2. Add electromagnetic door lock at door L101b and a card reader on the existing building side of door.

**Item No. 36 - Drawing E7-1 - Single Line Diagram**

1. Delete the exit light and associated breaker from EDC#1.

**Item No. 37 - Drawings E2-0.1, E2-1.1, E2-2.1, and E7.1**

1. Refer to attached sketch S(E7-1)r1:  
Provide and install a 600 amp 347/600V 3 phase 4W splitter on the load side of the 500 amp generator breaker. Provide a 500A3P enclosed breaker at the splitter to feed the 500 amp transfer switch #1, and a 40A3P enclosed breaker at the splitter to feed a 60 amp transfer switch #2. Transfer Switch #2 shall feed a 600-120/208V, 3 phase, 4 wire 45 kVA transformer “T-E3” and associated Panel EH (120/208V, 3 phase, 4 wire 60 circuit capacity). Locate Panel EH in General Storage 140 (beside Panel EF) and locate transformer “T-E3” in crawlspace below (suspend from floor structure). Normal side of transfer switch to be fed with 40A3P breaker in 6CDP#1.

**E. APPROVED EQUALS AND ALTERNATE**

**Item No. 1 – Mechanical Equals**

.1 Subject to compliance with the requirements, the following items were indicated as Approved may be incorporated into the Work.

<i>Specification Section</i>	<i>Item</i>	<i>Manufacturer</i>	<i>Approval Yes / No</i>
08 90 00.2.3	Louvers	Ventex	Yes
22 11 16.2.3	Stainless Steel Piping	Viega ProPress 304	Yes
22 11 19.2.2	Backflow Preventers	Zurn Wilkins	Yes
22 11 19.2.4	Strainers for Domestic Water Piping	Zurn Wilkins	Yes
22 11 19.2.5	Oatey washing machine outlet boxes	John L Schultz Washing Machine Boxes	Yes
22 11 19.2.6	Hose Bibbs	Zurn	Yes
22 11 19.2.7	Wall Hydrants	Zurn	Yes
22 11 19.2.9	Water Hammer Arresters	Zurn Wilkins	Yes
22 40 00	McGuire / Non-Specified drainage & supplies	Delta Commercial Drainage & Supplies	Yes
22 40 00.2.1.3	Protective Shielding Pipe Covers	Zurn	Yes
22 40 00.2.2	Lawler Mechanical Mixing Valve	Delta Commercial Mechanical Mixing Valves	Yes
22 40 00.2.3	American Standard Shower Systems	Delta Commercial Shower Systems	Yes
22 40 00.2.5.1	Kindred single bowl sink	Novanni 1001d	Yes
22 40 00.2.5.2	Kindred single bowl sink	Novanni 10171	Yes
22 40 00.2.5.3	Kindred double bowl sink	Novanni 2003i	Yes – 18ga
22 40 00.2.7.5.1	Willoughby Bariatric Toilet	Acorn Bariatric Toilets	Yes
22 40 00.2.8.2	Stern Williams Mop Sinks & Accessories	Acorn Terrazzo Mop Sinks & Accessories	Yes
22 40 00.2.8.3.1	LS-1 (fixture) – Fiat	Zurn	Yes
22 63 13	Air Liquide Medical Equipment	Class 1 Medical equipment	Yes
23 05 16.2.1, 2.2 & 2.3	Expansion Joints	Twin City Hose	Yes
23 05 19.2.1	Thermometers	Miljoco	Yes
23 21 13 2.4.6	Pressure Compensating Flow Limiting Valves	Nexus	Yes
23 21 23.2.4 & 23 25 00.2.3	Hydronic System Fill Pumps	Axiom	Yes
23 21 23.2.4 & 23 25 00.2.3	Hydronic System Fill Pumps	Hydronic Sentry	Yes

**E. APPROVED EQUALS AND ALTERNATE - Continued**

**Item No. 1 – Mechanical Equals - Cont'd.**

<i>Specification Section</i>	<i>Item</i>	<i>Manufacturer</i>	<i>Approval Yes / No</i>
23 33 00.2.3	Manual Volume Dampers	Alumavent	Yes
23 33 00.2.4	Fire Dampers	Alumavent	Yes
23 34 16.2.2	Exhaust Fan	PennBarry	Yes
23 34 16	Inline Mixed Flow Fans	Aerovent	Yes
23 72 00.2.1	Heat Recovery Ventilator	Air 2000	Yes
23 72 00.2.1	Heat Recovery Ventilator	Lifebreath	Yes
23 73 13.2.1	Air Handling Units	Trane	Yes
23 82 19.2.2	Fan Coil Units	Trane	Yes
23 83 16.2.1.1	PEX Piping	Viega	Yes

**Item No. 2 – Electrical Alternate**

26 28 17 Power Circuit Breaker

General Electric

26 29 23 Adjustable Frequency Drives

General Electric

26 32 13 Emergency Power Generation

Generac

26 36 23 Automatic Transfer Switch

Cutler Hammer

**26 50 01 Luminaire Schedule**

Type BB/CC      Mark Lighting  
Type S            Contech

## APPENDIX “B” to Bid

Project Title and Location: Pineview Terrace Lodge  
Nursing Home  
Prince Albert, SK  
Project No. 09.038

Bid Submitted by:

## SEPARATE PRICES

The following are our Separate Prices for the work listed hereunder. Such work and amounts are included in our Stipulated Price. (If not used, bar and Initial the space below)

Description of Work	Separate Price Amount (\$)
.1 Luminaires.	

## APPENDIX “C” to Bid

Project Title and Location: Pineview Terrace Lodge  
Nursing Home  
Prince Albert, SK  
Project No. 09.038

Bid Submitted by:

## LIST OF UNIT PRICES

The following are our Unit Prices for the Units of Work listed hereunder. The Unit Prices listed apply to performing the Units of Work only during the time scheduled for such work in the project schedule. (if not used, bar and initial the space below)

**Part 1                    General**

**1.1                    SECTION INCLUDES**

- .1 Expansion joint assemblies for floor, wall and ceiling surfaces.

**1.2                    RELATED SECTIONS**

- .1 Section 06 10 00 - Rough Carpentry.  
.2 Section 03 30 00 - Cast-in-place Concrete: Expansion and contraction joints in exterior concrete joints and junction of concrete slab-on-grade and perimeter walls.

**1.3                    REFERENCES**

- .1 ASTM B221M-07 - Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes Metric.

**1.4                    SUBMITTALS FOR REVIEW**

- .1 Section 01 33 00: Submission procedures.  
.2 Product Data: Provide joint assembly profiles, profile dimensions, anchorage devices, available colours and finish.  
.3 Shop Drawings: Indicate joint and splice locations, mitres, layout of the work, affected adjacent construction, and anchorage locations.  
.4 Include the following paragraph for submission of physical samples for selection of finish, colour, texture, etc.  
.5 Samples: Submit two (2) samples, 150 mm long, illustrating profile, dimension, colour, and finish selected.

**1.5                    SUBMITTALS FOR INFORMATION**

- .1 Section 01 33 00: Submission procedures.  
.2 Installation Data: Manufacturer's special installation requirements, including rough-in sizes; provide templates for cast-in or placed frames or anchors; required tolerances for item placement.

**1.6                    MAINTENANCE MATERIAL SUBMITTALS**

- .1 Section 01 78 40: Maintenance and extra material requirements.  
.2 Extra Stock Materials: Provide 3000 mm of resilient joint filler and special tools required for accessing and servicing components.

**Part 2 Products**

**2.1 MANUFACTURERS**

- .1 Watson Bowman Acme Corporation, Product: Wabo.
- .2 Substitutions: Refer to Section 01 62 00.

**2.2 MATERIALS**

- .1 Extruded Aluminum: ASTM B221 alloy, 6063-T6 temper.
- .2 Resilient Filler: Elastomer, exhibiting Shore A hardness of 40 - 75 Durometer.
- .3 Threaded Fasteners: Stainless steel.
- .4 Backing Paint: Asphaltic type.

**2.3 FABRICATION**

- .1 Joint Covers: Aluminum cover plate, aluminum frame construction, retainers with resilient elastomeric filler strip, designed to permit plus or minus 50 percent joint movement with full recovery, flush and recess mounted.
- .2 Back paint components in contact with cementitious materials.
- .3 Galvanize embedded ferrous metal anchors and fastening devices.
- .4 Shop assemble components and package with anchors and fittings.
- .5 Provide joint components in single length wherever practical. Minimize site splicing.

**2.4 FINISHES**

- .1 Floors: Non-slip surfacing of aluminum oxide.
- .2 Walls and Ceilings: Clear anodized.
- .3 Resilient Filler Exposed to View: as selected.

**Part 3 Execution**

**3.1 EXAMINATION**

- .1 Section 01 70 00: Verify existing conditions before starting work.
- .2 Verify that field measurements are as instructed by the manufacturer.
- .3 Verify that joint preparation and affected dimensions are acceptable.

**3.2 PREPARATION**

- .1 Provide anchoring devices for installation.
- .2 Provide templates and rough-in measurements.

**3.3 INSTALLATION**

- .1 Install components and accessories to manufacturer instructions.
- .2 Align work plumb and level, flush with adjacent surfaces.
- .3 Rigidly anchor to substrate to prevent misalignment.

**3.4 PROTECTION OF FINISHED WORK**

- .1 Section 01 78 40: Protecting installed work.
- .2 Do not permit traffic over unprotected floor joint surfaces.
- .3 Provide removable strippable coating, reinforced cloth tape to protect finish surface.

**3.5 SCHEDULES**

- .1 Floor Joints at Resilient Floor Finish:
  - .1 Manufacturer Model
    - .1 Wabo, LPP-200.
- .2 Wall Joints at Gypsum Board on Studding, Recess Mounted:
  - .1 Manufacturer Model
    - .1 Wabo, CWS-200.
- .3 Ceiling Joints at Gypsum Board Ceiling Finish:
  - .1 Manufacturer Model
    - .1 Wabo, CEB-200.

**END OF SECTION**

# **Prairie North Health Region**

## **Cabling Specification**

**V1.0**

**2009-11-26**

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# DIVISION 27 – COMMUNICATIONS

## 27 00 00 *Communications*

### 27 05 26 *Grounding and Bonding for Communications Systems*

#### 27 05 26.01 General

27 05 26.01.A The facility must be equipped with a Telecommunications Bonding Backbone (TBB). This backbone should be used to ground all telecommunications cable shields, equipment, racks, cabinets, raceways, and other associated hardware that has the potential to act as a current-carrying conductor. The TBB should be installed independent of the building's electrical and building ground and should be designed in accordance with the recommendations contained in the ANSI/TIA/EIA-J-STD-607 Telecommunications Bonding and Grounding Standard.

27 05 26.01.B The main entrance facility in the building must be equipped with a telecommunications main grounding bus bar (TMGB). Each telecommunications room should be provided with a telecommunications ground bus bar (TGB). The TMGB should be connected to the building electrical entrance grounding facility. The telecommunications grounding busbar (TGB) in each telecommunications space will be grounded to the telecommunications main grounding bus bar located at the service entrance. The gauge of the connecting ground cable, known as the Telecommunications Bonding Backbone (TBB) will follow ANSI/TIA/EIA-J-STD-607 guidelines, as is shown in the table below.

Sizing of the TBB	
TBB Length in linear meters (feet)	TBB Size (AWG)
Less than 4 (13)	6
4 – 6 (14 – 20)	4
6 – 8 (21 – 26)	3
8 – 10 (27 – 33)	2
10 – 13 (34 – 41)	1
13 – 16 (42 – 52)	1/0
16 – 20 (53 – 66)	2/0
Greater than 20 (66)	3/0

The intent of this system is to provide a grounding system that is equal in potential to the building electrical ground system. Therefore, ground loop current potential is

minimized between telecommunications equipment and the electrical system to which it is attached.

Perform ground continuity and resistance tests using method appropriate to site conditions and to approval of the electrical consultant and the local authority having jurisdiction over installation. Ground resistance is to be a maximum of five (5) ohms prior to connections being completed at the ground grid.

**27 05 26.01.C** All racks, metallic backboards, cable sheaths, metallic strength members, splice cases, cable trays, etc. entering or residing in the Telecom Rooms or Electrical Room must be grounded to the respective TGB or TMGB using a minimum #6 AWG stranded copper bonding conductor and compression connectors.

**27 05 26.01.D** All wires used for telecommunications grounding purposes should be identified with green or with a wrap of green tape insulation. Non-insulated wires should be identified at each termination point with a wrap of green tape. All cables and bus bars should be identified and labeled in accordance with the section 27 08 01.01.D, *System Documentation*, of this specification.

## **27 05 26.02 Grounding and bonding system installation**

**27 05 26.02.A** The TBB should be designed and/or approved by a qualified Professional Engineer, licensed in the province where the work is to be performed. The TBB should adhere to the recommendations of the ANSI/TIA/EIA-J-STD-607 standard, and should be installed in accordance with best industry practice.

**27 05 26.02.B** A licensed electrical contractor should perform installation and termination of the main bonding conductor to the building service entrance ground.

## **27 05 28 Pathways for Communications Systems**

### **27 05 28.01 General**

The contractor is held responsible to be familiar with the provisions contained herein and with other Sections of this Specification as applicable to the completion of the installation. The contractor is held responsible to be familiar with the provisions contained herein and is assumed to possess the knowledge, manpower, and materials applicable to the completion of the installation.

The intent of the telecommunications pathways is to provide the building with a route from the building's telecommunications rooms to the telecommunications outlet at the end user's work area or alternate equipment termination point. The contractor must coordinate the installation of the new pathways to accommodate project requirements.

All products are to be installed per the manufacturer's instructions and procedures.

The installation of new pathways shall not interfere with existing utilities or pathways. All new pathways must remain accessible and useable after completion.

## **27 05 28.02 Wiring Projects Scope of Work**

The scope of work under this section consists of providing cable hangers, wire mesh cable trays and raceways for the structured wiring included in this project.

The approved structured cabling systems that will be installed in the pathways are 24 AWG Category 6 (UTP) and other low voltage wire cablings systems. Verify manufacturer installation and warranty requirements when designing and installing structured cabling system pathways.

Furnish and install raceways and cable tray systems in hallways and other accessible areas, above ceilings where applicable or as specified in the project documents and drawings. Transition cable trays to alternate cable support systems in inaccessible areas. Install cable tray and raceway systems according to the manufacturers' product installation instructions using the manufacturers' approved methods and components.

Bond and ground all conduits, cable trays, racks and other infrastructure as per NEC and TIA 607A to the main building ground.

Furnish, install and document re-enterable UL listed firestop assemblies at all firewall penetrations.

Conduits or sleeves entering telecommunications rooms shall extend 1-3" into the room. Penetrations through concrete floors must not be made without the approval of a structural engineer. Re-use existing structured wiring outlet boxes and service poles wherever possible.

Provide submittals for all pathway products to the owner (Director of IT) for approval.

## **27 05 28.29 Hangers and Supports for Communications Systems**

Furnish and install cable hangers and support devices that are rated to support the installed cable system in accessible areas.

Cable supports shall provide a bearing surface of sufficient width to comply with required bend radii of the structured wire specified in this section. Cable supports shall have flared edges to prevent damage while installing cables. Cable supports shall be filled to a maximum of 40% total fill capacity and sized to accommodate future cabling changes or additions.

Cable hangers in a span shall be spaced no further than 5 feet apart and must be fastened to permanent building structure only.

### **27 05 28.36 Cable Trays for Communications Systems**

All wire mesh cable trays and accessories shall be submitted and approved by the owner (Director of IT).

Furnish and install cable tray system from the telecommunications room, in hallways and corridors, as indicated on the project drawings to complete a distribution infrastructure. Where cable tray is not possible to install, another pathway method must be implemented and approved by the owner (Director of IT).

Install entire cable tray system in accordance with manufacturer's minimum installation practices and all local governing codes.

Wherever possible, coordinate installation of cable tray to allow a minimum of 12 inches above, 6 inches in front, and 3 inches below of clearance from piping, conduits, ductwork, etc. Ceiling-mounted supports shall be mounted to ceiling structure directly or with 1/4", 3/8" or 1/2" threaded rod.

Furnish and install additional cable tray sections and accessories such as waterfalls to provide entrance to equipment racks and cabinets. Cable tray shall be filled to a maximum of 40% total fill capacity and sized to accommodate future cabling changes or additions.

Provide splices, supports, and other fittings necessary for a complete, continuously grounded system as recommended by cable tray manufacturer. Ground cable trays at the end of continuous run. Ground cable trays against fault current, noise, lightning, and electromagnetic interference by mounting grounding wire to each 10' cable tray section with grounding clamp. Cable trays must be grounded per NEC requirements and manufacturer recommendations.

### **27 05 28.39 Surface Raceways for Communications Systems**

All surface mounted raceways and accessories shall be submitted and approved by the owner (Director of IT). Provide surface raceway systems for structured wiring and other low-voltage wiring wherever necessary. Surface raceway system shall consist of raceway bases, covers, appropriate fittings and device mounting plates necessary for a complete installation. Provide a complete system using approved manufacturer parts and methods. Secure raceway system using screws and attachments. Do not use adhesives strips as a final means of support.

Raceway shall be filled to a maximum of 40% total fill capacity and sized to accommodate future cabling changes or additions.

## **27 05 53 *Identification for Communications Systems***

### **27 05 53.01 Cabling System Labeling**

27 05 53.01.A The contractor shall develop and submit for approval a labeling system for the cable installation based on ANSI/TIA/EIA-J-STD-606-A standards. The owner (Director of IT) will negotiate an appropriate labeling scheme with the contractor; at a minimum, the labeling system shall clearly identify all components of the system: racks, cables, panels and outlets. The labeling system shall designate the cable's origin and destination and a unique identifier for the cable within the system. Cabinets and patch panels shall be labeled to identify the location within the cabling system infrastructure. All labeling information shall reflect the appropriate labeling scheme.

27 05 53.01.B All label printing will be machine generated using labeling software and printers. Self-laminating labels will be used on cable jackets, appropriately sized to the OD of the cable, and placed within view at the termination point on each end. Labels shall be installed in a permanent fashion.

## **27 08 00 Commissioning of Communications**

### **27 08 01 *System Documentation***

#### **27 08 01.01 General**

27 08 01.01.A Upon completion of the installation, the telecommunications contractor must provide three (3) full documentation sets to the owner (Director of IT) for approval.

27 08 01.01.B Documentation should be submitted within ten (10) working days of the completion of each testing phase (e.g. subsystem, cable type, area, floor, etc.). This is inclusive of all test results and draft as-built drawings. Draft drawings may include annotations done by hand. Machine-generated (final) copies of all drawings should be submitted within 30 working days of the completion of each testing phase. At the request of the owner (Director of IT), the telecommunications contractor should provide copies of the original test results.

27 08 01.01.C The owner (Director of IT) may request that a 10% random field re-test be conducted on the cable system, at no additional cost, to verify documented findings. If findings contradict the documentation submitted by the telecommunications contractor, additional testing can be requested to the extent determined necessary by the owner (Director of IT), including a 100% re-test. This re-test should be at no additional cost to the owner (Director of IT).

27 08 01.01.D The communications system grounding and bonding bus bars should be labeled as follows:

	Label	Location
TMGB	D-TMGB	Demarcation Room
TGB	1-TGB	Old Server Room
TGB	2-TGB	Main Server Room

## **27 08 02 *Test Results Documentation***

### **27 08 02.01 General**

27 08 02.01.A Test documentation must be provided in electronic form (CD, etc.) within three (3) weeks after the completion of the project. The media should be clearly marked with the words "Project Test Documentation", the project name, and the date of completion (month and year). The results should include a record of test frequencies, cable type, conductor pair and cable (or outlet) I.D., reference setup, and crew member name(s). The test equipment name, manufacturer, model number, serial number, software version and last calibration date will also be provided at the end of the document. Unless the manufacturer specifies a more frequent calibration cycle, an annual calibration cycle is anticipated on all test equipment used for this installation. The test document should indicate the software version being used in the field test equipment.

27 08 02.01.B The field test equipment should meet the requirements of ANSI/TIA/EIA-568-B. The appropriate level III tester should be used to verify Category 6 cabling systems.

27 08 02.01.C Printouts generated for each cable by the wire test instrument should be submitted as part of the documentation package. Alternately, the telecommunications contractor may furnish this information in electronic form (CD, etc.). The media should contain the electronic equivalent of the test results as defined by the bid specification and be of a readable format.

27 08 02.01.D When repairs and re-tests are performed, the problem found and corrective action taken should be noted, and both the failed and passed test data should be documented.

## **27 08 03 As-Built Drawings**

### **27 08 03.01 General**

27 08 03.01.A The drawings are to include outlet locations. Numbering, icons, and drawing conventions used should be consistent throughout all documentation provided. The owner (Director of IT) will provide floor plans in paper and electronic formats on which as-built construction information can be added. These documents will be modified accordingly by the telecommunications contractor to denote as-built information as defined above and returned to the owner (Director of IT).

27 08 03.01.B The contractors must annotate the base drawings and return a hard copy (same plot size as originals) and electronic form.

## **27 10 00 Structured Cabling**

### **27 10 01 Scope**

#### **27 10 01.01 General**

27 10 01.01.A This document describes the products and execution requirements relating to furnishing and installing Telecommunications Cabling within PNRHA facilities. Backbone and horizontal cabling comprised of copper cabling, optical fiber, and support systems are covered under this document. Cabling for a nurse call system is to be included as is cabling for an access control system.

27 10 01.01.B All cables and related terminations, support and grounding hardware should be furnished, installed, wired, tested, labeled, and documented by the Telecommunications contractor as detailed in this document.

27 10 01.01.C Products specifications, general design considerations, and installation guidelines are provided in this document. Quantities of telecommunications outlets and typical installation details will be provided as an attachment to this document. If the bid documents are in conflict, this specification should take precedence. The successful contractor should meet or exceed all requirements for the cable systems described in this document.

27 10 01.01.D Wiring for a nurse call system is to be supplied and installed according to the manufacturer's specifications. See 27 52 23 Nurse Call/Code Blue Systems.

27 10 01.01.E Wiring for an access control system is to be supplied and installed according to the manufacturer's specifications. See 28 05 13.16 Access Control Communications Conductors and Cables.

27 10 01.01.F Wiring for wireless access points is to be supplied and installed according to the manufacturer's specifications. The number of wire runs and locations must be indicated on the project drawings and approved by owner (Director of IT).

## **27 10 02 *Regulatory References***

### **27 10 02.01 General**

27 10 02.01.A All work and materials must conform in every detail to the rules and requirements of the applicable fire protection standards, the local electrical code, local building code, and current manufacturing standards.

27 10 02.01.B All materials must be UL Listed and should be marked as such. If UL has no published standards for a particular item, then other national independent testing standards should apply and such items should bear those labels. Where UL has an applicable system listing and label, the entire system should be so labeled.

### **27 10 02.02 Reference list**

27 10 02.02.A The cabling system described in this is derived from the recommendations made in recognized telecommunications industry standards. The following documents are incorporated by reference:

- ANSI/TIA/EIA-568-C and its addenda
- ANSI/TIA/EIA-569-B and its addenda
- ANSI/TIA/EIA-606-B
- ANSI-J-STD-607-A
- ANSI/TIA/EIA-862
- CSA Z317.13
- CSA Z32

27 10 02.02.B If this document and any of the documents listed above are in conflict, then the more stringent requirement will apply. All documents listed are believed to be the most current releases of the documents. The contractor has the responsibility to determine and adhere to the most recent release when developing the proposal for installation.

27 10 02.02.C This document does not replace any code, either partially or wholly. The contractor must be aware of local codes that may impact this project.

27 10 02.02.D The bidder must be aware of the guidelines in the CSA Z317.13 standard previously referenced in regard to infection control during construction in a health care facility.

27 10 03.01.E All components of the proposed solution must be manufactured and tested as part of a single manufacturer system and the performance specified by the manufacturer.

#### ***27 10 04 General Condition – Approved Installer***

##### **27 10 04.01 General**

27 10 04.01.A In the event subcontractors are used for any portion of the installation or acceptance testing, the vendor will be responsible for any subsequent corrective action required on that portion.

27 10 04.01.B All components of the proposed system must be manufactured and tested as part of a single manufacturer system and the performance specified by the manufacturer. The bidder must provide proof of current manufacturer design and installation status and all work must be completed by manufacturer-certified installers.

#### ***27 10 05 General Condition – Approved Products***

##### **27 10 05.01 Approved products**

27 10 05.01.A Due to the nature and type of communications all products, including but not limited to faceplates, jacks, patch panels, IDC blocks, copper cable products and patch cords, for the purpose of this document must be from a single manufacturer and must be certified as a system by the manufacturer.

#### ***27 10 07 Work Included***

##### **27 10 07.01 General**

27 10 07.01.A The work included under this specification consists of furnishing all labour, equipment, materials, and supplies and performing all operations necessary to complete the installation of this structured cabling system in compliance with the specifications and drawings. The Telecommunications contractor will provide and install all of the required material to form a complete system whether specifically addressed in the technical specifications or not.

27 10 07.01.B The work will include, but not be limited to the following:

- Furnish and install a complete telecommunications wiring infrastructure.
- Furnish, install, and terminate all UTP cable.
- Furnish and install all wall plates, jacks, patch panels, and patch cords.
- Furnish and install all required cabinets and/or racks as required and as indicated.
- Furnish any other material required to form a complete system.
- Perform permanent link testing (100% of horizontal and/or backbone links) and provide permanent link pass result report.
- Furnish test results of all cabling to the owner (Director of IT) on CD or memory stick.
- Provide owner (Director of IT) training and documentation (testing documentation and as-built drawings).
- Coordinate the installation of the new system with the owner (Director of IT) to minimize disruption of services provided by the existing system.
- Obtain approval from a structural engineer before any coring is performed in relation to this project.
- CSA Z317.13 – Infection control during construction, renovation, and maintenance of health care facilities. Construction-related infections caused by Aspergillus, Legionella, and other agents have been reported for several health care facilities. The mortality rate for aspergillosis (i.e., an Aspergillus infection) and Legionnaires' disease (pneumonia caused by Legionella) acquired in health care facilities is high (65 to 100% for the former, 24 to 80% for the latter), even when these infections are recognized and treated. This document will need to be followed as a guideline at the very least.

## **27 10 08    *Drawings specification***

### **27 10 08.01    General**

27 10 08.01.A     It should be understood that the drawings provided with the specification package are diagrammatic. They are included to show the intent of the specifications and to aid the telecommunications contractor in bidding the job. The telecommunications contractor should make allowance in the bid proposal to cover whatever work is required to comply with the intent of the plans and specifications.

27 10 08.01.B     The telecommunications contractor should verify all dimensions at the site and be responsible for their accuracy.

27 10 08.01.C     Prior to submitting the bid, the telecommunications contractor will call the attention of the owner (Director of IT) to any materials or apparatus the

telecommunications contractor believes to be inadequate and to any necessary items of work omitted.

## ***27 10 09 Pre-project Submittals***

### **27 10 09.01 General**

27 10 09.01.A Under the provisions of this request for proposal, prior to the start of work the telecommunications contractor will:

- Submit copies of the certification of the company and names of staff that will be performing the installation and termination of the installation to provide proof of compliance of this spec.
- Submit appropriate cut sheets and samples for all products, hardware and cabling.

27 10 09.01.B Work will not proceed without the owner (Director of IT)'s approval of the submitted items.

27 10 09.01.C The telecommunications contractor will receive approval from the owner (Director of IT) on all substitutions of material. No substituted materials should be installed except by written approval from the owner (Director of IT).

## ***27 10 10 Delivery, Storage and Handling***

### **27 10 10.01 General**

27 10 10.01.A Delivery and receipt of products should be at the site described in the section 27 10 01, *Scope*.

27 10 10.01.B Cable will be stored according to manufacturer's recommendations as a minimum. In addition, cable must be stored in a location protected from vandalism and weather. If cable is stored outside, it must be covered with opaque plastic or canvas with provision for ventilation to prevent condensation and for protection from weather. If air temperatures at cable storage location will be below 4.4° C (40° F), the cable should be moved to a heated 10° C (50° F) minimum location. If necessary, cable should be stored off site at the contractor's expense.

27 10 10.01.C If the telecommunications contractor wishes to have a trailer on site for storage of materials, arrangements must be made with the owner (Director of IT).

## **27 10 10.02 Continuity of services**

27 10 10.02.A The telecommunications cabling contractor shall take no action that will interfere with, or interrupt, existing building service unless previous arrangements have been made with the owner (Director of IT). The owner (Director of IT) must approve and sign off on such actions.

27 10 10.02.B Should services be inadvertently interrupted, the telecommunications cabling contractor shall immediately furnish labour, including overtime, material and equipment necessary for prompt restoration of the interrupted services at no cost to the owner (Director of IT).

## **27 10 10.03 Use of site**

27 10 10.03.A Use of site will be at the owner (Director of IT)'s/general contractor's direction in matters in which the owner (Director of IT) deems necessary to place restrictions.

27 10 10.03.B The owner (Director of IT) will occupy part of the premises where work is to take place and may need to conduct normal business operations. Cooperate with the owner (Director of IT) to minimize conflict and to facilitate the owner (Director of IT)'s operations.

27 10 10.03.C Proceed with work without interfering with the ordinary use of streets, aisles, passages, exits and operations of the owner (Director of IT).

## **27 10 11 Structured cabling overview**

### **27 10 11.01 General**

27 10 11.01.A The systems chosen will meet the specifications as described in these subsections.

The UTP-based cabling system shall have a 250 MHz Channel Bandwidth over a maximum distance of 100m (328 ft) and a positive channel Power Sum Attenuation-to-Crosstalk Ratio (PSACR) up to 250 MHz.

The UTP-based cabling system shall use matched components from a single manufacturer, and the cabling system shall be certified to deliver system performance over the lifetime of the applications for which the cabling system was originally designed to support.

All components used in the UTP-based cabling system shall be warranted for a period of 20 or more years from date of installation against defects in materials and/or workmanship.

The UTP-based cabling system shall comply with the ANSI/TIA-EIA-568-C Category 6 standard.

The UTP-based cabling system must be capable of supporting Gigabit Ethernet (1000BASE-T).

**27 10 11.01.B** The systems chosen must meet the performance specifications as described:

Parameters	Frequency	Standards*
PSNEXT	100 MHz	37.1 dB
	200 MHz	31.9 dB
	250 MHz	30.2 dB
Insertion Loss	100 MHz	21.3 dB
	200 MHz	31.5 dB
	250 MHz	35.9 dB
PSACR	100 MHz	15.8 dB
	200 MHz	0.4 dB
	250 MHz	-5.8 dB
PSELFEXT	100 MHz	20.3 dB
	200 MHz	14.2 dB
	250 MHz	12.3 dB
Return Loss	100 MHz	12.0 dB
	200 MHz	9.0 dB
	250 MHz	8.0 dB
Propagation Delay		555 ns
Delay Skew		50 ns
Available Bandwidth		200 MHz

Worst case scenario for four-connector topology.

\*Based on ANSI/TIA/EIA-568-B.2-1 (Cat. 6 addenda – July 2002)

\*\*Positive PSACR @ 250 MHz

## **27 10 12 *Testing and acceptance***

### **27 10 12.01 General**

**27 10 12.01.A** All cables and termination hardware must be 100% tested for defects in installation and to verify cabling system performance under installed conditions according to the requirements of ANSI/TIA/EIA-568-C. All pairs of each installed cable will be verified prior to system acceptance. Any defect in the cabling system installation including but not limited to cable, connectors, feed through couplers,

patch panels, and connector blocks will be repaired or replaced in order to ensure 100% useable conductors in all cables installed.

### **27 10 12.02 Copper channel testing**

27 10 12.02.A All twisted-pair copper cable links will be tested for continuity, pair reversals, shorts, opens and performance as indicated. Additional testing is required to verify Category performance. Horizontal cabling will be tested using a Level III test unit for Category 6 performance compliance.

27 10 12.02.B Continuity - Each pair of each installed cable will be tested using a test unit that shows opens, shorts, polarity and pair-reversals, crossed pairs and split pairs. The test will be recorded as pass/fail as indicated by the test unit and referenced to the appropriate cable identification number and circuit or pair number. Any faults in the wiring will be corrected and the cable re-tested prior to final acceptance.

27 10 12.02.C Length - Each installed cable link will be tested for installed length using a TDR type device. The cables will be tested from patch panel to patch panel, block to block, patch panel to outlet or block to outlet as appropriate. The cable length will conform to the maximum distances set forth in the ANSI/TIA/EIA-568-C Standard. Cable lengths will be recorded, referencing the cable identification number and circuit or pair number. For multi-pair cables, the shortest pair length will be recorded as the length for the cable.

27 10 12.02.D Category 6 Performance - Performance testing will be done according to the published ANSI/TIA/EIA-568-C Standard.

### **27 10 13 Warranty and services**

#### **27 10 13.01 Product warranty**

27 10 13.01.A The installed system installed will provide a minimum fifteen-year product warranty with preference for a twenty-year warranty.

### **27 11 00 Communications Equipment Room Fittings**

#### **27 11 16 Communications Cabinets**

##### **27 11 16.01 Cabinets**

27 11 16.01.A All cabinets should be APC NetShelter as follows and be equipped with the accessories listed below:

Ordering Number	Description
	Page 15

APC AR3150	Black 42U NetShelter SX with sides (750mm x 1070mm)
APC NetBotz 320	Enviro-monitor with camera
APC AP7902	Power distribution unit (PDU); 2 per telecom room

Where air conditioning is not dedicated to a telecom room with cabinets, adequate cabinet ventilation will be required to prevent equipment overheating.

### **27 11 16.02 Cabinet installation**

27 11 16.02.A All Cabinets must be lockable from the front and back to ensure a secure enclosure. The owner (Director of IT) should be contacted to verify cabinet requirements in the main server room and/or wiring closets.

27 11 16.02.B Cabinets should be placed with a minimum of 36 inch clearance from the walls on all sides of the cabinet. When mounted in a row, maintain a minimum of 36 inches from the wall behind and in front of the row of cabinets and from the wall at each end of the row.

27 11 16.02.C All cabinets will be grounded to the telecommunications ground bus bar in accordance with section 27 05 26 of this document, *Grounding and Bonding for Communications Systems*.

27 11 16.02.D Items not used for installing patch panels and other hardware should be bagged and left with the owner (Director of IT) upon completion of the installation.

27 11 16.02.E Termination equipment fields should be installed as per the requirements specified by the manufacturer's installation guides.

27 11 16.02.F Each cabinet must not be filled to more than 50% of capacity with wire termination equipment. The number of cabinets required for wire termination will be determined by the structured wire runs on the plans provided.

### **27 11 19 Communications Termination Blocks and Patch Panels**

#### **27 11 19.01 Patch Panel**

27 11 19.01.A General

The patch panel system should provide a Category 6 centralized, rack-mounted termination, identification and service assignment point for UTP horizontal, backbone and equipment cabling at the horizontal or main cross connect, using modular cord assemblies.

**27 11 19.01.B      Mounting Hardware**

The UTP cross-connect/interconnect system rack mount should be provided in black.

The UTP cross-connect/interconnect system rack mount should feature optional wire management to secure cable bundles, control and maintain proper cable bend radius and provide physical protection for terminations.

The UTP cross-connect/interconnect system rack mount should be compatible with the 19 in. equipment racks, cabinets or wall mount brackets.

The UTP cross-connect/interconnect system rack mount should have a 16-gauge sheet metal construction and the module holder will be made of fire-retardant plastic construction compliant with UL94HB, black.

The UTP cross-connect/interconnect system rack mount offer a large front labeling space to facilitate port identification and be able to use printable labels for clear identification and to ease network management.

The UTP cross-connect/interconnect system rack mount should have an integrated rear cable management bar for neat cable dressing.

The UTP cross-connect/interconnect system rack mount should be compatible with colour-coded modules.

**27 11 19.01.C      Connection Module:**

See 27 15 43.03, *Modular Jacks*.

**27 11 19.04.D**      The modular patch panel should be 24-port black.

**27 11 19.02 Copper Termination hardware installation**

**27 11 19.02.A**      Cables will be dressed and terminated in accordance with the recommendations made in the ANSI/TIA/EIA-568-C standard document, manufacturer's recommendations and installation guides, and best industry practices.

**27 11 19.02.B**      Pair untwist at the termination will not exceed 13 mm (0.5 inch).

**27 11 19.02.C**      Bend radius of the UTP cable in the termination area will not exceed 4 times the outside diameter of the cable.

27 11 19.02.D Cables should be neatly bundled and dressed to their respective panels or blocks. Each panel or block should be fed by an individual bundle separated and dressed back to the point of cable entrance into the rack or frame.

27 11 19.02.E Each cable will be clearly labeled on the cable jacket behind the patch panel at a location that can be viewed without removing the bundle support ties. Cables labeled within the bundle, where the label is obscured from view will not be acceptable.

## **27 13 00 Communications Backbone Cabling**

### **27 13 13 *Communications Copper Backbone Cabling***

#### **27 13 13.01 Backbone cables**

27 13 13.01.A General

The backbone cabling is the portion of the cabling system that links the cross-connects within a building and between buildings in a campus environment. The backbone cabling consists of the feeder field of the horizontal cross-connect, intrabuilding and interbuilding backbone cable, and intermediate and main cross-connects.

27 13 13.01.B 100 Ohm Category 6 unshielded twisted-pair cable (UTP).

See section 27 15 13.02.B, *100 Ohm Category 6 unshielded twisted-pair cable (UTP)*.

27 13 13.01.C 100 Ohm Category 3 house cable is unshielded twisted pair cable designed to carry dial tone to the telecom rooms. Verify pair counts to serve Old Server Room and Main Server Room with the owner (Director of IT).

#### **27 13 13.02 Backbone cables installation**

27 13 13.02.A Backbone cables will be installed separately from horizontal distribution cables.

27 13 13.02.B A plastic or nylon pull cord with a minimum test rating of 90 Kg (200 lb.) will be co-installed with all cable installed in any conduit.

27 13 13.02.C Where backbone cables and distribution cables are installed in a cable tray or wireway, backbone cables should be installed first and bundled separately from the horizontal distribution cables.

27 13 13.02.D Vertical runs of cable will be supported to messenger strand, cable ladder, or other method to provide proper support for the weight of the cable.

## **27 13 23    *Communications Optical Fiber Backbone Cabling***

### **27 13 23.01    *Fiber Backbone Cabling***

27 13 23.01.A Indoor tight buffered optical fiber will be placed and terminated between the Fourth Floor Penthouse and the Main Server Room. Fiber cable will be 12-fiber laser-optimized multi-mode 50/125 $\mu$ . The OM3 standard will be adhered to, which will support 10 Gb/s Ethernet up to 300 meters per ANSI/TIA/EIA-568-C.

27 13 23.01.B Multi-mode fiber optic connectors will be of type SC.

27 13 23.01.C The multi-mode fiber will be tested at both wavelengths of 850 (nm) and 1300 (nm).

27 13 23.01.D Multi-mode fiber optic patch cables shall comply with ANSI/TIA/EIA-568-C and meet the same performance criteria for multi-mode 50/125 $\mu$  optical cables as required for the backbone cabling. Patch cords are to be factory assembled. Verify connector types with owner (Director of IT) prior to ordering.

## **27 15 00    *Communications Horizontal Cabling***

### **27 15 00.43    *Nurse Call Horizontal Cabling***

The Nurse Call system will be a GE Telligence patient-staff communications system. As part of this project, the following is required for the proposed nurse call system.

- Installing pathway and electrical boxes.
- Pulling, terminating, and labeling all necessary cable and wire.

All wire runs should terminate in the same rack termination field in the Main Server Room. The wire should be colour-coded for visual identification as per the owner (Director of IT)'s specifications.

An installation and user manual is included as part of this project.

The successful bidder shall inquire of the owner (Director of IT) regarding the specific system planned for the project.

## **27 15 00.49 Intermediate Frequency/Radio Frequency Communications Horizontal Cabling**

For this project, the wireless system portion of the work consists of installing, terminating, and labeling Category 6 4-pair UTP copper cables. Locations are indicated on the project drawings. All wireless outlets and patch cords are to be green in colour. For each location on the project drawings where two drops in the ceiling are indicated, note that one drop is for wireless and the other should be terminated as a regular data drop.

### **27 15 13 *Communications Copper Horizontal Cabling***

#### **27 15 13.01 Topology**

27 15 13.01.A Workstation and wireless system horizontal cabling will be installed following a star topology.

The horizontal (workstation) cabling system and wireless system cabling will consist of Category 6, 4-pair UTP copper cables to each work area outlet as per the owner (Director of IT)'s specifications. The cables should be installed from the work area outlet to the applicable Telecommunications Room, and routed to the appropriate cabinet serving that area and terminated as specified in the project drawings.

Exceptions: The nurse call system and the access control system shall be wired according to the manufacturers' specifications.

27 15 13.01.B The nurse call system shall consist of Category 6, 4-pair UTP copper cable. The wiring shall be installed according to the manufacturer's specifications in the system manual.

27 15 13.01.C The access control system shall consist of shielded access control wire run between doors as marked on the project drawings and controllers to be located in the Telecommunications Rooms. See 28 05 13.16 in Annex A.

#### **27 15 13.02 Horizontal distribution cables**

27 15 13.02.A General

All horizontal data station cables and voice cables will terminate on modular patch panels or IDC cross-connecting systems in their respective Telecommunications Rooms as specified on the drawings and specifications.

27 15 13.02.B 100 Ohm Category 6 unshielded twisted-pair cable (UTP)

The horizontal UTP cable shall be measured to 450 MHz and the supplier shall guarantee performance up to 250 MHz.

The horizontal UTP cable shall meet or exceed the Category 6 transmission characteristics per ANSI/TIA/EIA-568-C.

The non-plenum version of the horizontal UTP cable will be ITS/ETL Certified as Type CMR and listed as NEC Type CMR per UL Standard 444.

The horizontal UTP cable will have a maximum DC resistance of 9.38 Ohms/100 m at 20° C.

The horizontal UTP cable will have a maximum mutual capacitance of 5.6 nF/100m.

The horizontal UTP cable will have an input impedance of 100 +/- 15 Ohms from 1 to 100 MHz, 100 +/- 22 Ohms from 101 to 200 MHz and 100 +/- 32 Ohms from 201 to 300 MHz.

The horizontal UTP cable will have a maximum propagation delay (Skew) of 25 ns/100 m.

The horizontal UTP cable will meet the transmission specifications given:

Frequency (MHz)	Attenuation (dB/100m) (max.)	NEXT (dB) (min.)	PSNEXT (dB) (min.)	ACR (dB) (min.)	PSACR (dB) (min.)	ELFEXT (dB) (min.)	PSELFEXT (dB) (min.)	Return Loss (dB) (min.)
0.772	1.8	77.0	75.0	75.2	73.2	73.0	70.0	19.7
1.0	2.0	75.3	73.3	73.3	71.3	70.8	67.8	20.0
4.0	3.7	66.3	64.3	62.6	60.6	58.8	55.8	23.0
8.0	5.2	61.8	59.8	56.6	54.6	52.7	49.7	24.5
10.0	5.8	60.3	58.3	54.5	52.5	50.8	47.8	25.0
16.0	7.4	57.2	55.2	49.9	47.9	46.7	43.7	25.0
20.0	8.3	55.8	53.8	47.5	45.5	44.8	41.8	25.0
25.0	9.3	54.3	52.3	45.1	43.1	42.8	39.8	24.3
31.25	10.4	52.9	50.9	42.5	40.5	40.9	37.9	23.6
62.5	15.0	48.4	46.4	33.4	31.4	34.9	31.9	21.5
100.0	19.3	45.3	43.3	26.0	24.0	30.8	27.8	20.1
200.0	28.3	40.8	38.8	12.5	10.5	24.8	21.8	18.0
250.0	32.1	39.3	37.3	7.3	5.3	22.8	19.8	17.3
300.0	35.6	38.1	36.1	2.6	-0.6	21.3	18.3	16.8
350.0*	38.9	37.1	35.1	-1.7	-3.7	19.9	16.9	16.3
400.0*	42.0	36.3	34.3	-5.7	-7.7	18.8	15.8	15.9
450.0*	45.0	35.5	33.5	-9.5	-11.5	17.7	14.7	15.5

\*The values above 300 MHz are for information only.

The horizontal UTP cable will have a nominal velocity of propagation (NVP) of 68% at 10 MHz for non-plenum type cable.

The horizontal UTP cable should have decreasing sequential print on cable jacket of remaining cable length.

The horizontal UTP cable should have a ripcord to facilitate removal of the cable jacket.

The Category 6 horizontal station cable should be 24 AWG and blue in colour.

### **27 15 13.03 Horizontal distribution cable installation**

27 15 13.03.A      Cable will be installed in accordance with manufacturer's recommendations and best industry practices.

27 15 13.03.B      A plastic or nylon pull cord with a minimum test rating of 90 Kg (200 lb.) will be co-installed with all cable installed in any conduit.

27 15 13.03.C      Cable raceways should not be filled greater than the ANSI/TIA/EIA-569-B maximum fill for the particular raceway type or 40%.

27 15 13.03.D      Cables will be installed in continuous lengths from origin to destination (no splices) except for transition points, or consolidation points.

27 15 13.03.E      The cable's minimum bend radius and maximum pulling tension will not be exceeded. Refer to manufacturer's requirements.

27 15 13.03.F      If a J-hook or trapeze system is used to support cable bundles, all horizontal cables will be supported at a maximum of 48 to 60 inch (1.2 to 1.5 meter) intervals. At no point will cable(s) rest on acoustic ceiling grids or panels.

27 15 13.03.G      Horizontal distribution cables should be bundled in groups of no more than 50 cables. Cable bundle quantities in excess of 50 cables may cause deformation of the bottom cables within the bundle and degrade cable performance.

27 15 13.03.H      Cable should be installed above fire-sprinkler systems and should not be attached to the system or any ancillary equipment or hardware. The cable system and support hardware will be installed so that it does not obscure any valves, fire alarm conduit, boxes, or other control devices.

27 15 13.03.I      Cables will not be attached to ceiling grid or lighting fixture wires. Where support for horizontal cable is required, the contractor will install appropriate carriers to support the cabling. Where this is not possible, the owner (Director of IT) must be notified.

27 15 13.03.J Any cable damaged or exceeding recommended installation parameters during installation will be replaced by the contractor prior to final acceptance at no cost to the owner (Director of IT).

27 15 13.03.K Cables will be identified by a self-adhesive label in accordance with the section 27 05 53, *Identification for Communications Systems*, and ANSI/TIA/EIA-606-B. The cable label should be applied to the cable behind the faceplate on a section of cable that can be accessed by removing the cover plate.

27 15 13.03.L Cable will be installed so that there are no bends smaller than four times the cable outside diameter at any point in the run or in the termination field.

27 15 13.03.M Pulling tension will not exceed 25-lb for a 4-pair UTP cable.

## **27 15 43    *Communications Faceplates and Connectors***

### **27 15 43.01    General**

27 15 43.01.A Work area cables will each be terminated at their designated work area location in the connector types described in the following subsections. Included are modular telecommunication jacks. These connector assemblies should snap into a faceplate.

27 15 43.01.B The Telecommunications Outlet Assembly should accommodate:

- A maximum of four (4) modular jacks.
- Additional accommodations for specific locations as noted in the plans for optical fiber and/or additional copper cables as necessary.
- A blank filler to be installed when extra ports are not used.

Multiple jacks that are identified in close proximity on the drawings (but not separated by a physical barrier) may be combined in a single assembly. The telecommunications contractor will be responsible for determining the optimum compliant configuration based on the products proposed.

The same orientation and positioning of jacks and connectors should be utilized throughout the installation. Prior to installation, the telecommunications contractor will submit the proposed configuration for each outlet assembly for review by the owner (Director of IT).

The modular jack will incorporate printed label strips for identifying the outlet. Printed labels should be permanent and compliant with ANSI/TIA/EIA-606-B standard

specifications. Hand printed labels will not be accepted. The labeling plan must be discussed with the owner (Director of IT) before proceeding.

## **27 15 43.02 Faceplates**

### 27 15 43.02.A      Interface Plates

The faceplate housing the UTP connector modules should provide a symmetrically centered appearance for the modules.

The faceplate housing the UTP connector modules should have no visible mounting screws.

The faceplate housing the UTP connector modules will have aperture plugs to cover any unused openings in the faceplate.

Faceplate will fit over standard NEMA type outlet boxes or wall-mounting bracket for flush mount installation.

The faceplate housing the UTP connector modules will have the option of being mounted on adapter boxes for surface mount installation.

The faceplate housing the UTP connector modules should have a labeling capability to facilitate outlet identification and ease network management.

The faceplate housing the UTP connector modules will accommodate a maximum of four (4) modules in a single-gang form.

The faceplate housing the UTP connector modules should provide flexibility in configuring multimedia workstation outlets that respond to present or future network needs such as audio, video, coaxial and optical fiber applications.

The faceplate will be made of fire-retardant UL 94V-0 plastic.

The faceplate will be UL, CSA and Austel approved.

Patient rooms will have a tamper-resistant faceplate (e.g., Hubbel TPF1W four-port, single gang). All other wall-mount faceplates shall have the outlet facing 45° downward.

The modular jacks used with these faceplates are found in section 27 15 43.03.

The faceplate styles and colours must be approved by the owner (Director of IT).

## 27 15 43.03 Modular Jacks

27 15 43.03.A Category 6 module

Jacks will be 8-position modular jacks and will be Category 6 performance as defined by the references in this document including ANSI/TIA/EIA-568-C performance requirements. All pair combinations must be considered, with the worst-case measurement being the basis for compliance. Modular jack performance should be third-party verified by a nationally recognized independent testing laboratory.

The UTP connector module will be a punch down UTP connector.

The eight-position UTP connector module should accommodate 6-position modular plug modular cords without damage to either the cord or the module.

The UTP connector module will have an optional cover to protect the module when not in use.

The UTP connector module and its optional cover will be available in the following colours:

- blue (data)
- green (wireless)
- purple (Supernet)
- red (telehealth)

The UTP connector module should be designed for use at the work area, telecommunications room and/or equipment room without modification.

The UTP connector module punch down type should have an in-line IDC termination interface with sharp pair splitters for the termination of wire pairs.

The UTP connector module should be available in both the T568A-ISDN and T568B-ALT wiring configurations within the same module.

The UTP connector module will have all of his components made of fire-retardant UL 94V-0 plastic.

The UTP connector module IDC termination block durability should be 10 insertions of any combination of wire gauge.

The UTP connector module will have a maximum contact resistance of 1 mΩ per contact.

The UTP connector module will have a minimum insulation resistance of 200 MΩ.

The UTP connector module will be FCC Part 68, Subpart F compliant.

The UTP connector module durability should be 1000 mating cycles.

The UTP connector module maximum current rating will be 1.5 amperes.

The UTP connector module dielectric strength will be 1000V RMS at 60 Hz for one minute.

The UTP connector module shall meet the transmission technical specifications performance when measured at 100 MHz with PS6 plugs:

Parameters	Value (dB)
NEXT	55.1
PSNEXT	52.0
FEXT	49.8
PSFEXT	46.9
Attenuation	0.10
Return Loss	27.0

#### **27 15 43.04 Work area termination hardware termination**

27 15 43.04.A Work area outlets and connectors will be installed in accordance with manufacturer's recommendations and installation guides, and best industry practices.

27 15 43.04.B Cables should be dressed and terminated in accordance with the recommendations made in the ANSI/TIA/EIA-568-C standard document, manufacturer's recommendations and best industry practices.

27 15 43.04.C Cables should be coiled in the in-wall or surface-mount boxes if adequate space is present to house the cable coil without exceeding the manufacturer's bend radius. In hollow wall installations where box-eliminators are used, excess wire can be stored in the wall. No more than 300 mm (12 in.) of UTP and 915 mm (36 in.) of fiber slack should be stored in an in-wall box, modular furniture raceway, or insulated walls. Excess slack should be loosely coiled and stored in the ceiling above each drop location when there is not enough space present in the outlet box to store slack cable.

27 15 43.04.D Pair untwist at the termination will not exceed 12 mm (0.5 in.).

27 15 43.04.E Bend radius of the cable in the termination area will not be less than 4 times the outside diameter of the cable.

## **27 16 00 Communications Connecting Cords, Devices and Adapters**

### ***27 16 19 Communications Patch Cords, Station Cords, and Cross Connect Wire***

#### **27 16 19.01 Modular cords**

##### **27 16 19.01.A Modular Cords**

The contractor will provide factory terminated and tested UTP copper and optical fiber patch cords and equipment cords for the complete cabling system. The UTP patch cables will meet the requirements of ANSI/TIA/EIA-568-C for patch cord testing.

Category 6 modular patch cords will meet these requirements:

- The modular cord cable jacket should be printed at two-foot intervals indicating cable code, AWG and UL designations.
- The modular cord cable will be UL Listed as Type CMR in accordance with the Binational Standard for Communications Cable UL 444/CSA Standard C22.2 No. 214-94.
- The modular cord cable will be 4-pair, with 23 AWG solid copper conductors.
- The modular plug will meet the requirements of the ANSI/TIA/EIA-568-C.
- The modular plug will meet the requirements of the latest issue of ISO/IEC 11801.
- The modular plug will meet the requirements of the latest issue of FCC Part 68, Subpart F.
- The modular plug will meet the requirements of the latest issue of IEC 603-7 (1990).
- The modular plug will be UL Listed as a Recognized Component.
- The modular plug will have a maximum voltage rating of 150V AC.
- The modular plug will have a minimum dielectric strength of 1000  $\Omega$  RMS at 60 Hz for one minute.
- The modular plug minimum insulation resistance will be 500 M $\Omega$ .
- The modular plug maximum contact resistance will be 10 m $\Omega$ .
- The modular plug contacts should be made of phosphor bronze.
- The modular plug durability should be of 1000 mating cycles.
- The modular plug will be UL 94V-0 Flame Rating compliant.

- The modular plug will meet or exceed the requirements per ANSI/TIA/EIA-568-C parameters when tested at 100 MHz.

Parameter	Category 6 Modular Cord (dB)
NEXT	55.1
PSNEXT	52.0
FEXT	49.8
PSFEXT	46.9
Attenuation	0.10
Return Loss	27.0

- The modular plug will meet or exceed the requirements of de-embedded NEXT at 100 MHz as provided by ANSI/TIA/EIA-568-C.

PIN Combinations	ANSI/TIA/EIA-568-B.2-1 Category 6 (dB)
4-5 & 3-6	$37.0 \pm 0.6$
3-6 & 1-2	$47.0 \pm 1.5$
3-6 & 7-8	$\pm 2.0$
4-5 & 1-2	$\geq 57.0$
4-5 & 7-8	$\geq 57.0$
1-2 & 7-8	$\geq 60.0$

- The modular cord assembly will meet the requirements per ANSI/TIA/EIA-568-C.
- The modular cord assembly will meet the requirements per the latest issue of ISO/IEC 11801.
- The modular cord assembly will be UL listed as a Communication Circuit Accessory.
- The modular cord assembly should have a very small footprint to be fully compatible with the highest density hubs that use RJ45 jack connections.
- The modular cord assembly will have a coloured boot over the plug:
  - blue (data)
  - green (wireless)
  - purple (Supernet)
  - red (telehealth)
- The final quantities and colours of patch cords will be dependent on the owner (Director of IT)'s requirements.

**27 50 00 Distributed Communications and Monitoring Systems**

**27 52 00 Health Communications and Monitoring Systems**

**27 52 23 *Nurse Call/Code Blue Systems***

A GE Security - Telligence Nurse Call System will be installed in PNRHA facilities. This project includes the supply and installation of manufacture recommended cabling.

## **ANNEX A, ADDITIONAL INFORMATION**

### **DIVISION 28 – ELECTRONIC SAFETY AND SECURITY**

#### **28 05 00 Common Work Results for Electronic Safety and Security**

##### ***28 05 13 Conductors and Cables for Electronic Safety and Security***

###### **28 05 13.16 Access Control Communications Conductors and Cables**

An access control system for doorway security including wiring will be part of this project. A special shielded cable is required to be run from each door marked on the project drawing to the Main Server Room where the controllers will be located.

### **DIVISION 07 – THERMAL AND MOISTURE PROTECTION**

#### **07 84 00 Firestopping**

##### ***07 84 13 Penetration Firestopping***

###### **07 84 13.01 Firestop system**

07 84 13.01.A A firestop system is comprised of the item or items penetrating the fire rated structure, the opening in the structure and the materials and assembly of the materials used to seal the penetrated structure. Firestop systems comprise an effective block for fire, smoke, heat, vapor and pressurized water stream.

07 84 13.01.B All penetrations through fire-rated building structures (walls and floors) will be sealed with an appropriate firestop system. This requirement applies to through penetrations (complete penetration) and membrane penetrations (through one side of a hollow fire rated structure). Any penetrating item i.e., riser slots and sleeves, cables, conduit, cable tray, and raceways, etc. will be properly firestopped.

07 84 13.01.C Firestop systems will be UL Classified to ASTM E814 (UL 1479) and shall conform to local codes and inspection authorities.

07 84 13.01.D Re-enterable fire rated pathway devices shall be the preferred product and shall be installed in all locations where frequent cable moves, add-ons and changes will occur.

07 84 13.01.E Where it is not practical to use a mechanical device, openings within floors and walls designed to accommodate cabling shall be provided with re-enterable products that do not cure or dry.

07 84 13.01.F Openings for cable trays shall be sealed using re-enterable firestopping pillows.

## **07 84 13.02 Firestop system installation**

All firestop systems will be installed in accordance with the manufacturer's recommendations and will be completely installed and available for inspection by the local inspection authorities prior to cable system acceptance.

## **PNRHA Data Jack Labelling Standard**

**Taken and modified from ANSI/TIA/EIA 606-A Class 2 Standard**

### **Work Area (WA) format = *fs-ea-n***

Examples:

1A-3A-47 would be floor 1, telecommunications room A, rack 3, panel A, port 47

3B-2E-11 would be floor 3, telecommunications room B, rack 2, panel E, port 11

### **Backbone format = *fs1/fs2-n***

Examples:

1A/2B-08 would be floor 1, telecommunications room A, to floor 2, telecommunications room B, cable 8

### **Backbone fiber format = *fs1/fs2-n.d***

Examples:

1A/2B-08.03 would be floor 1, telecommunications room A, to floor 2, telecommunications room B, cable 8, strand 3

*f* = numeric character(s) identifying the floor of the building occupied by the TS

*s* = alpha character(s) uniquely identifying the TS on floor *f*, or the building area in which the space is located

*e* = numeric character(s) identifying the rack, cabinet or enclosure

*a* = one or two alpha characters uniquely identifying a single patch panel, a group of patch panels with sequentially numbered ports, an IDC termination block, or a group of IDC termination blocks, serving as part of the horizontal cross-connect

*n* = two to four numeric characters designating the port on a patch panel, or the section of an IDC termination block on which a four-pair horizontal cable is terminated in the TS

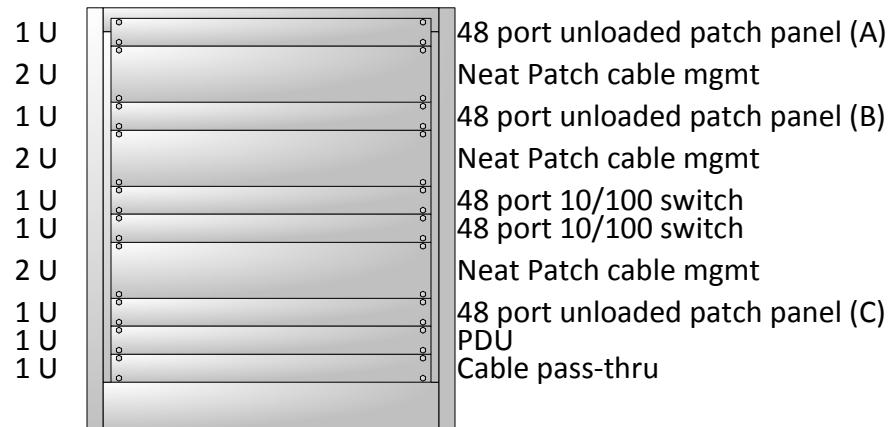
*d* = two to four numeric characters identifying a single copper pair or a single optical fiber

## PHRHA Patch Cable Color Standard

Type	Color	Examples
CNET/WAN/MAN Uplinks	Orange	Router to firewall, firewall to core switch connections
LAN Uplinks	Yellow	Switch to switch connections
Servers	Red	All server to switch and SAN to switch connections
Wireless	Green	WAP connections
Video	Purple	TeleHealth and video conferencing connections
Voice	White	VoIP device connections
Data	Blue	Computer, printer connections
Building/Access Control	Black	UPS, environmental monitoring, security connections

# Rack 1A-1

## 13 U



### Panel A Detail

WAN & Connectivity						Unused						Wireless					
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42

25 pair telephone cable

### Panel B Detail

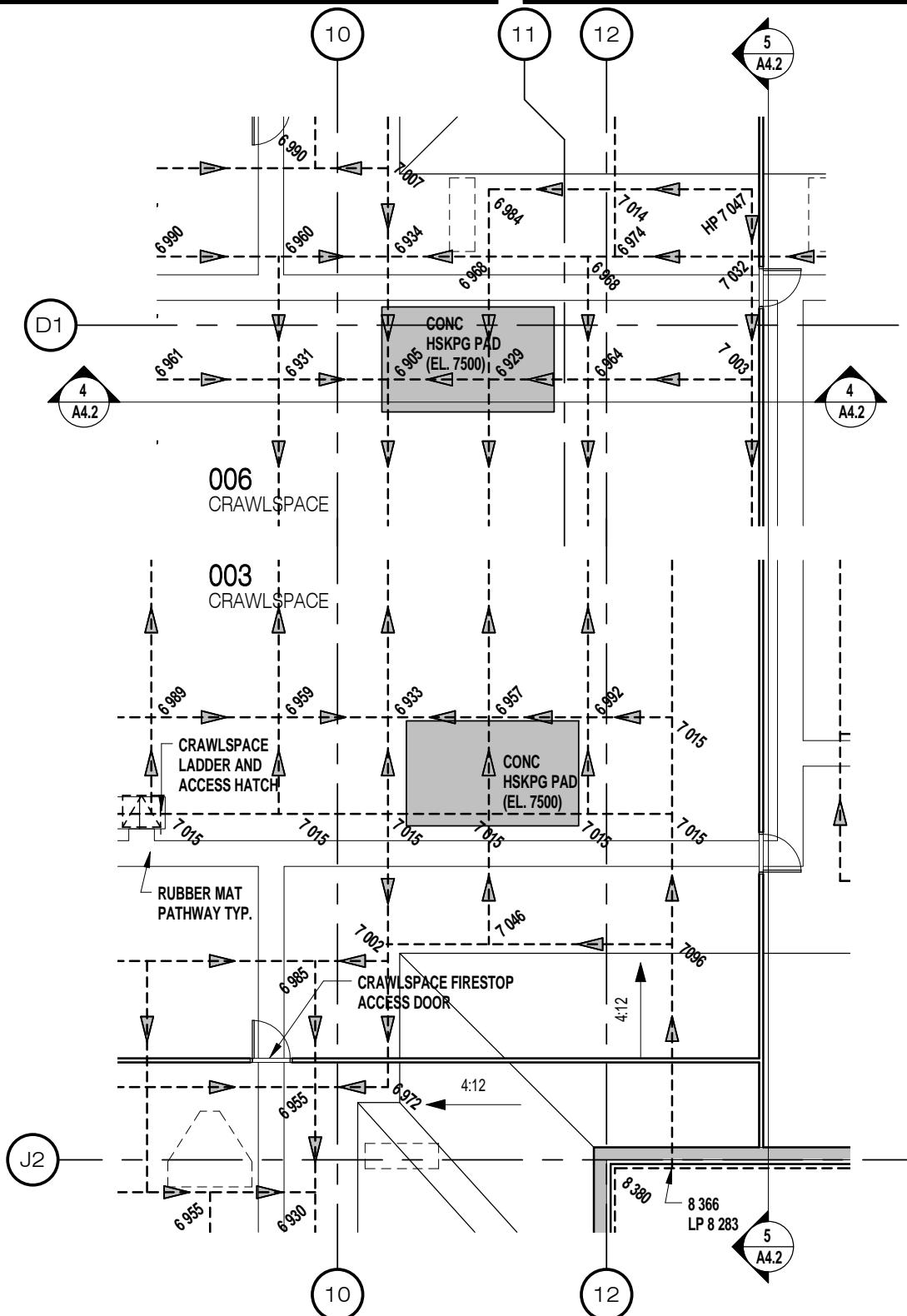
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42

Data/Voice

### Panel C Detail

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42

Data/Voice



# 1 BASEMENT/CRAWLSPACE

1:150

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Saskatoon, SK  
S7L 1M7  
306.244.5101

202 - 21 11th St E  
Prince Albert, SK  
S6V 0Z8  
306 922 5101

213 - 310 Main Street  
Moose Jaw, SK  
S6H 3K1  
306 692 5101

www.zdcbt.com

**PROJECT NAME**

**PROJECT NAME :** - PINEVIEW TERRACE LODGE NURSING HOME

1

- Prince Albert SK

---

**DRAWING NAME:**

CBAWI SPACE PLAN/BASEMENT PLAN

DATE: \_\_\_\_\_

FEB 2012

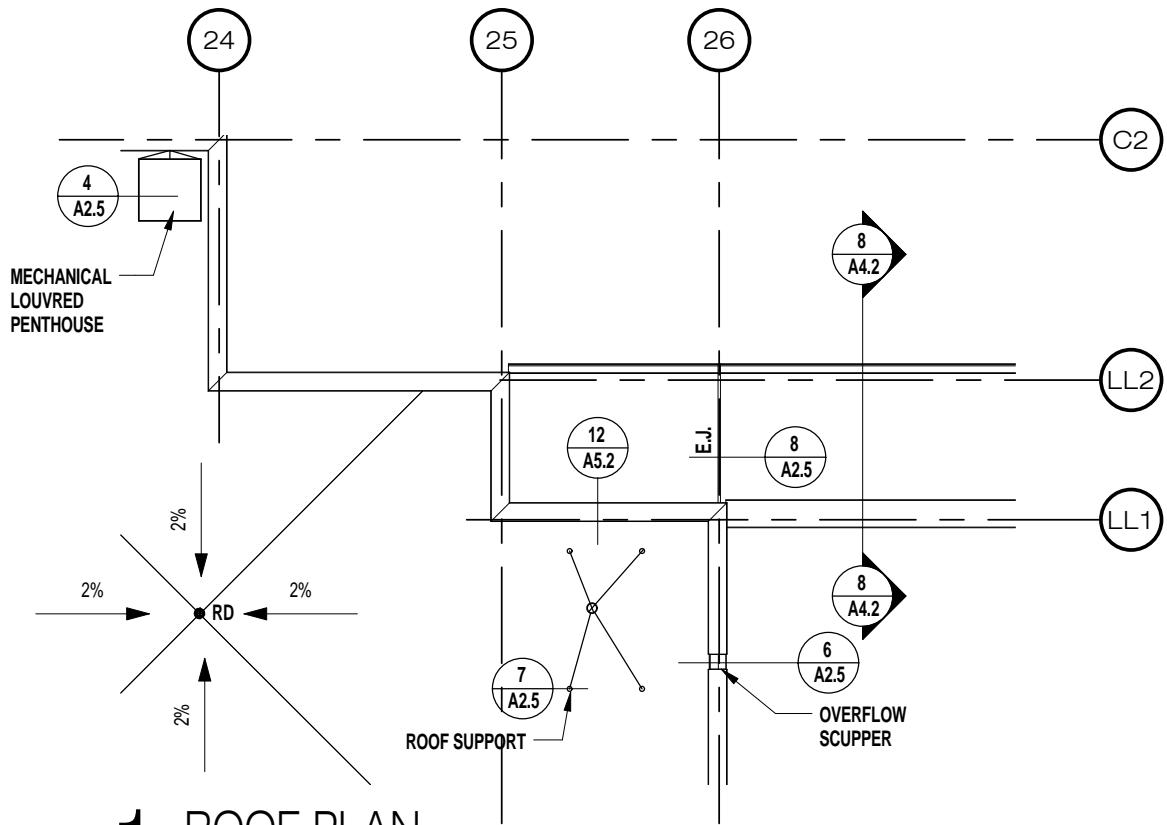
**PROJ. NO. :**

09.038

**DRAWN BY :**

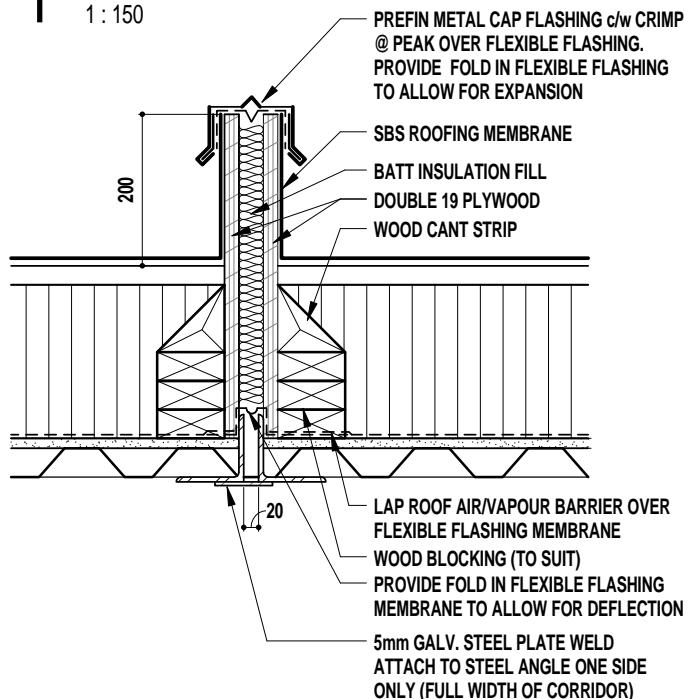
## RRM

DWG. NO. : A2.1-R1



## 1 ROOF PLAN

1:150



## 8 ROOF EXPANSION JOINT DETAIL

1:10

235 Ave D North  
Saskatoon, SK  
S7L 1M7  
306.244.5101202 - 21 11th St E  
Prince Albert, SK  
S6V 0Z6  
306.922.5101213 - 310 Main Street  
Moose Jaw, SK  
S6H 3K1  
306.632.5101

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- PINEVIEW TERRACE LODGE NURSING HOME
- -
- Prince Albert, SK

## DRAWING NAME :

ROOF PLAN &amp; DETAILS

## DATE :

FEB 2012

## PROJ. NO. :

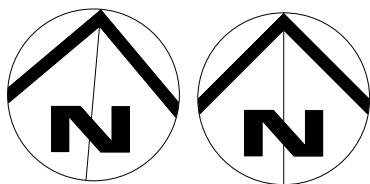
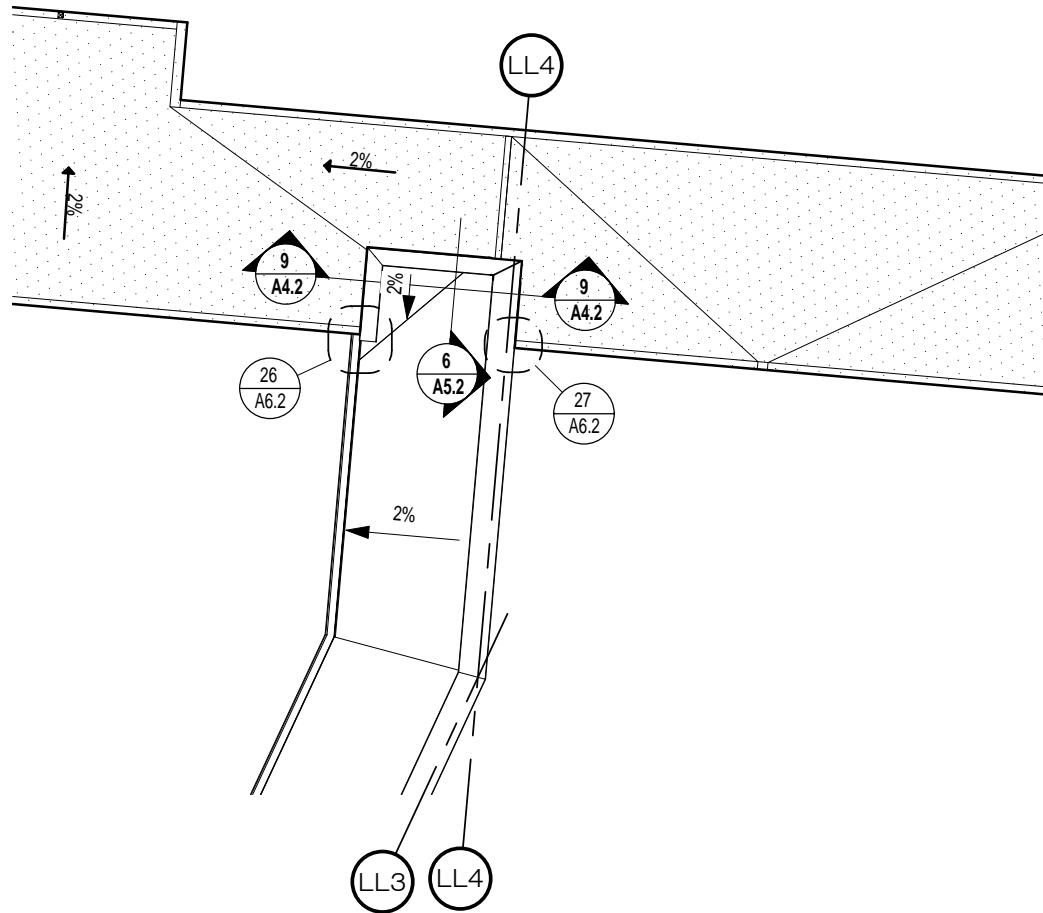
09.038

## DRAWN BY :

RRM

## DWG. NO. :

A2.5-R2



1 ROOF PLAN  
1:150

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- Prince Albert, SK

DRAWING NAME :

ROOF PLAN & DETAILS

DATE :

FEB 2012

PROJ. NO. :

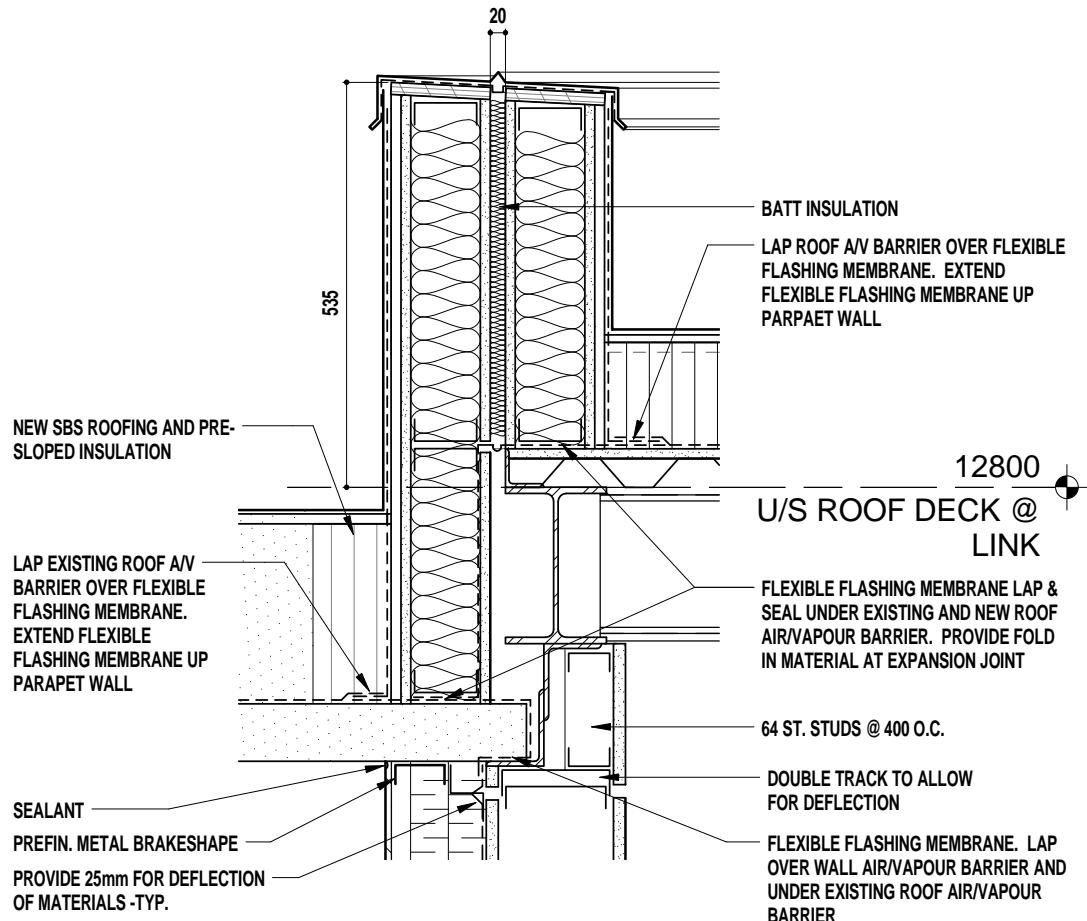
09.038

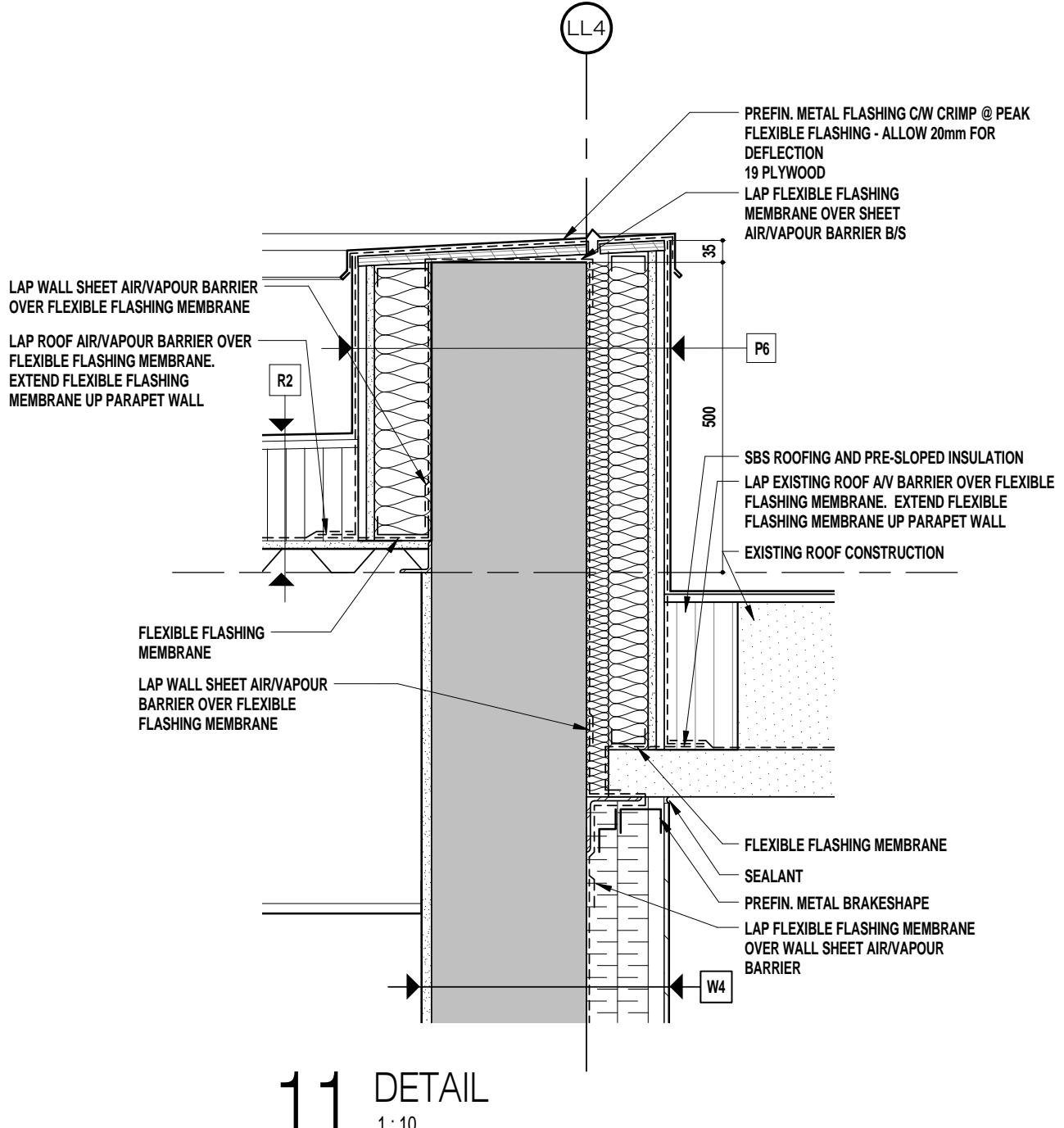
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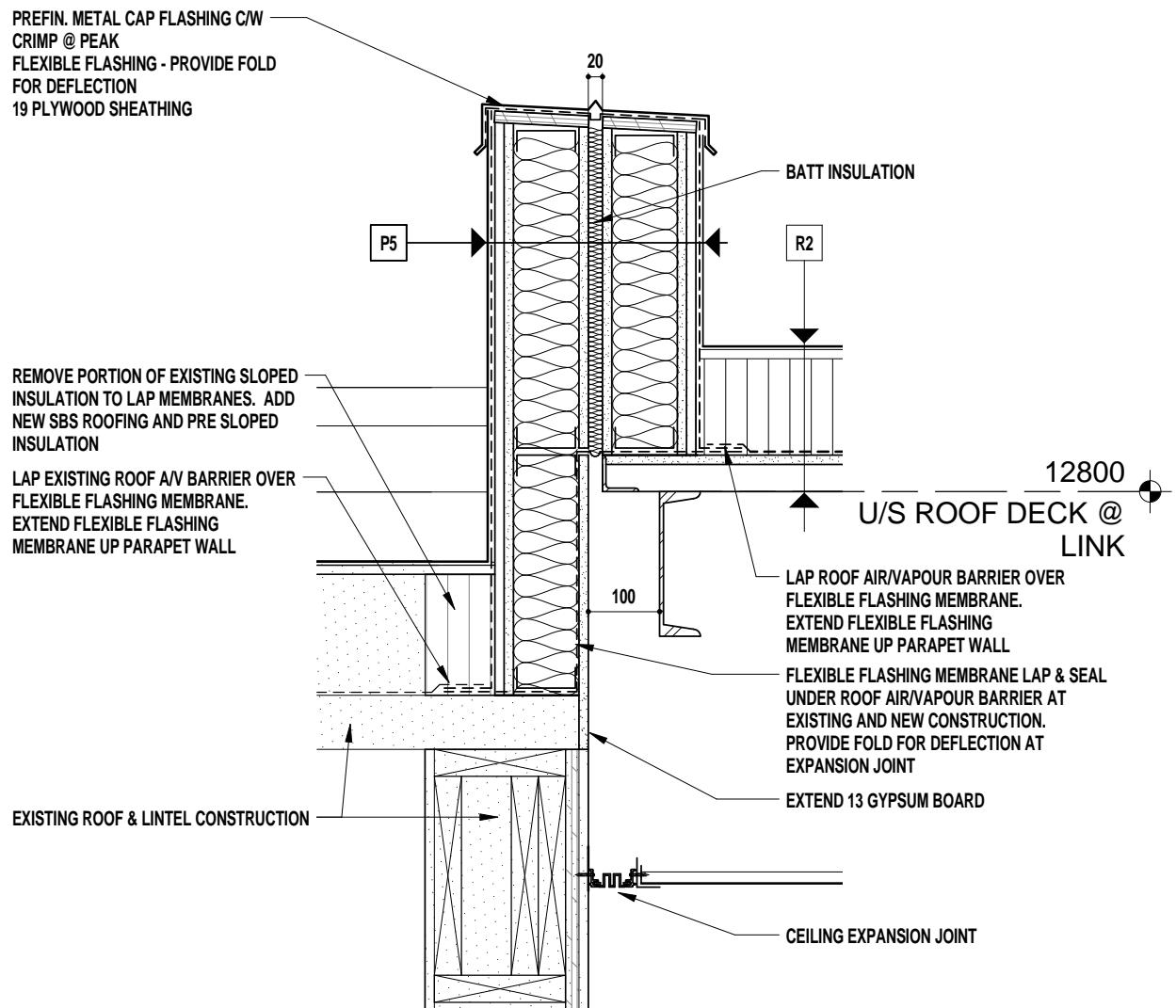
RRM

DWG. NO. :

A2.5-R3

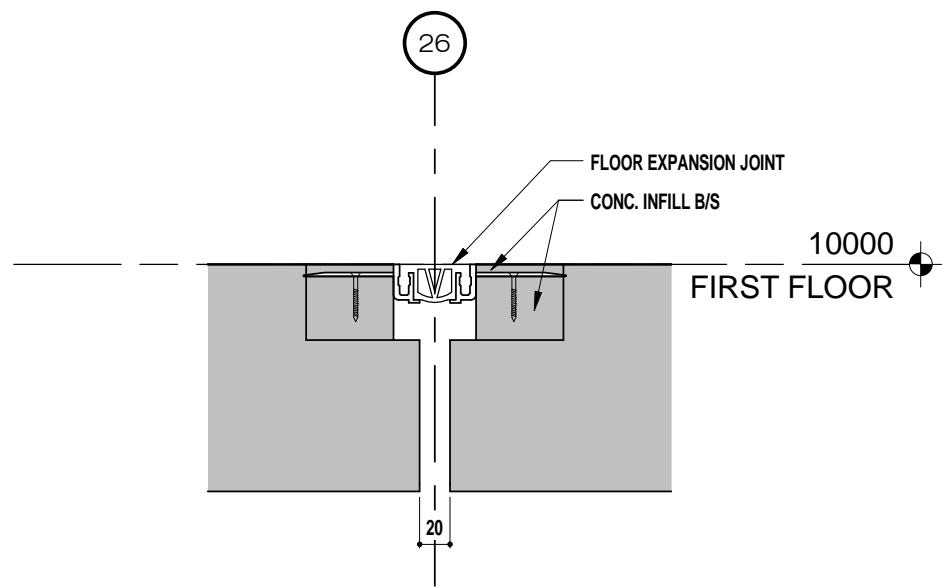






# 13 DETAIL

1:10



## 22 FLOOR EXPANSION JOINT

1:5



235 Ave D North  
Saskatoon, SK  
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306.922.5101

213 - 310 Main Street  
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S6H 3K1  
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- PINEVIEW TERRACE LODGE NURSING HOME
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### DATE :

FEB 2012

### PROJ. NO. :

09.038

### DRAWN BY :

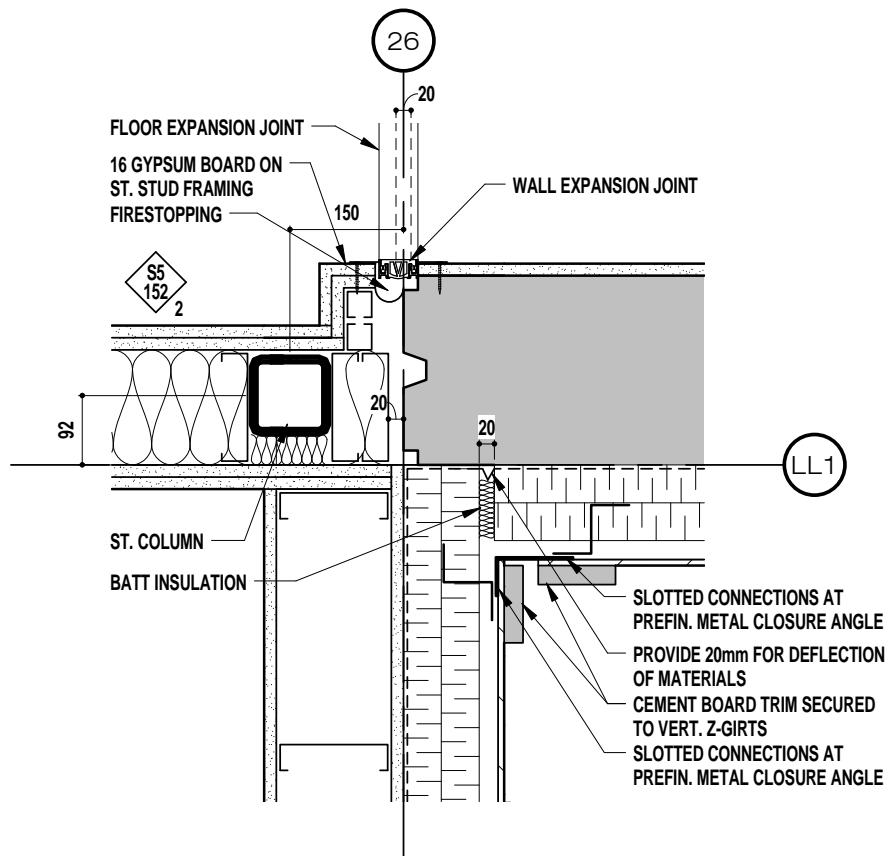
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### DWG. NO. :

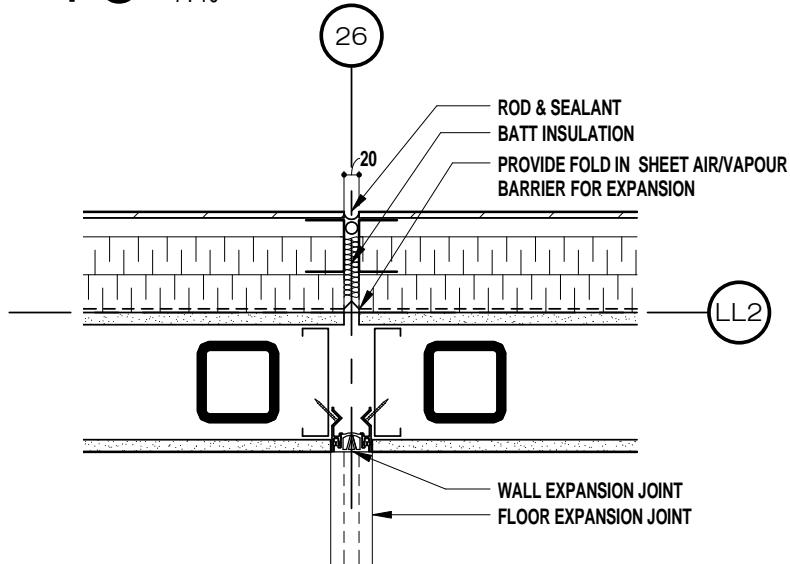
A6.1-R2

### DRAWING NAME :

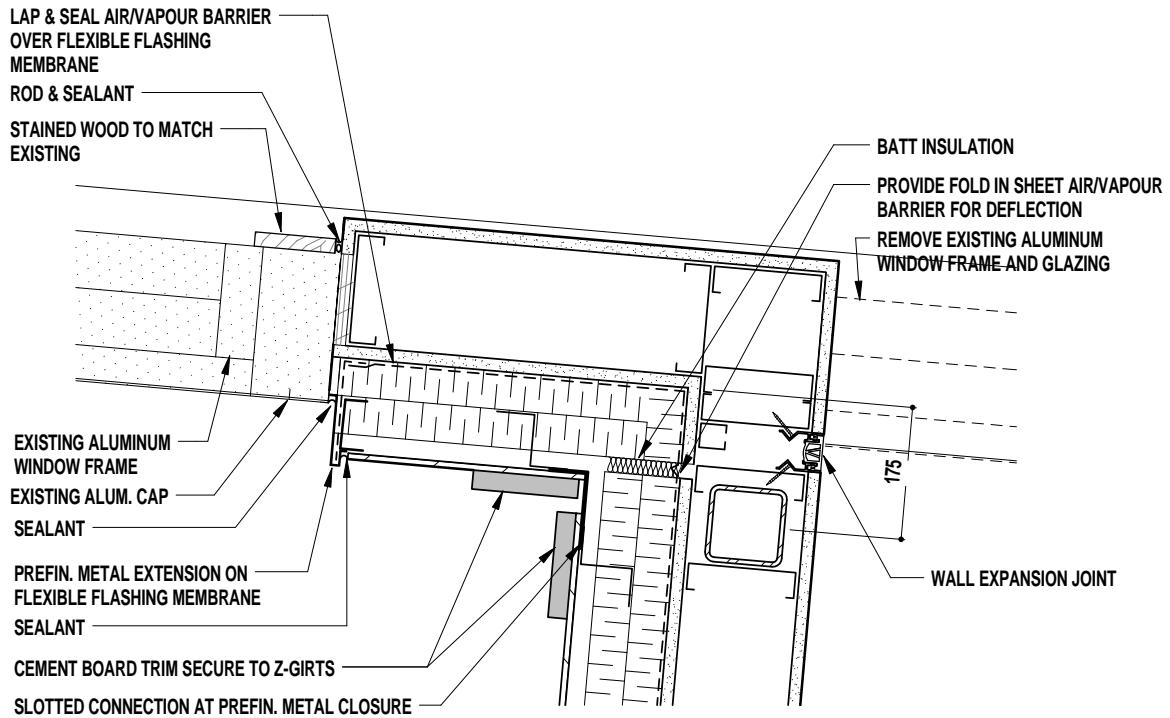
### SECTION DETAILS



16 PLAN DETAIL  
1:10



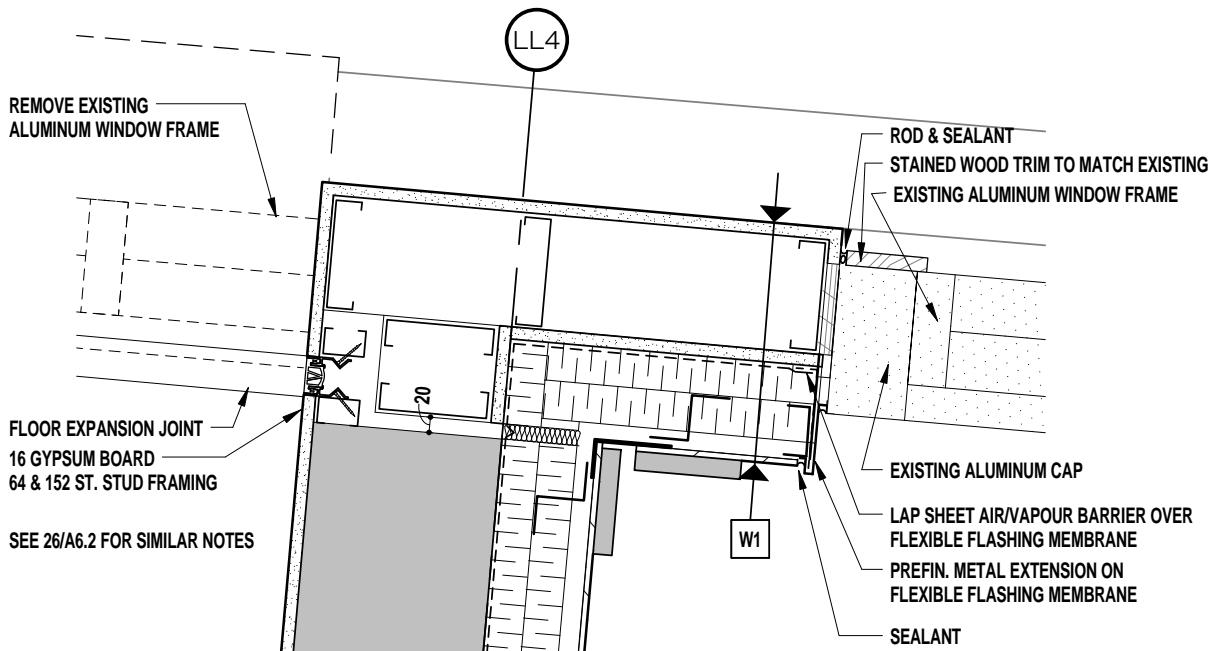
25 WALL EXPANSION JOINT DETAIL  
1:10



## 17 PLAN DETAIL

1:10

2/10/2012 9:31:17 AM



## 23 PLAN DETAIL

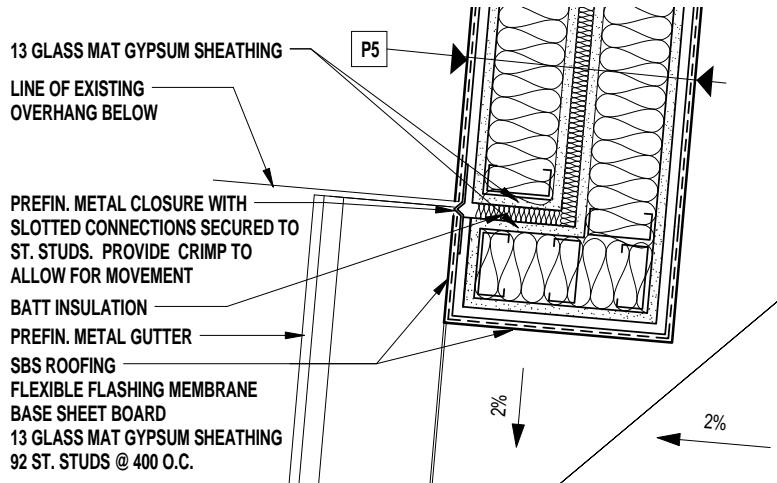
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PROJECT NAME :  
 - PINEVIEW TERRACE LODGE NURSING HOME  
 - -  
 - Prince Albert, SK

DRAWING NAME :

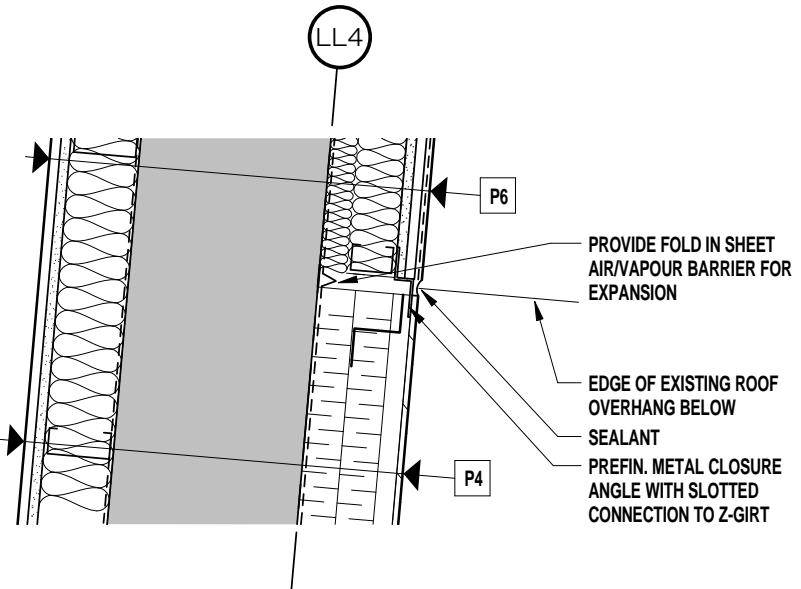
PLAN DETAILS

DATE : FEB 2012  
 PROJ. NO. : 09.038  
 DRAWN BY : RRM  
 DWG. NO. : A6.2-R3



26 PLAN DETAIL @ PARAPET  
1:10

2/10/2012 2:34:26 PM



27 PLAN DETAIL @ PARAPET  
1:10

PROJECT NAME :

- PINEVIEW TERRACE LODGE NURSING HOME  
- -  
- Prince Albert, SK

DRAWING NAME :

PLAN DETAILS

DATE :

FEB 2012

PROJ. NO. :

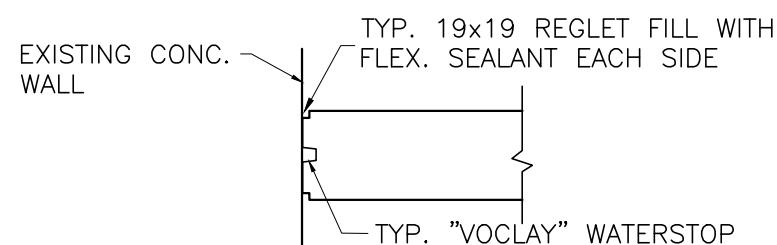
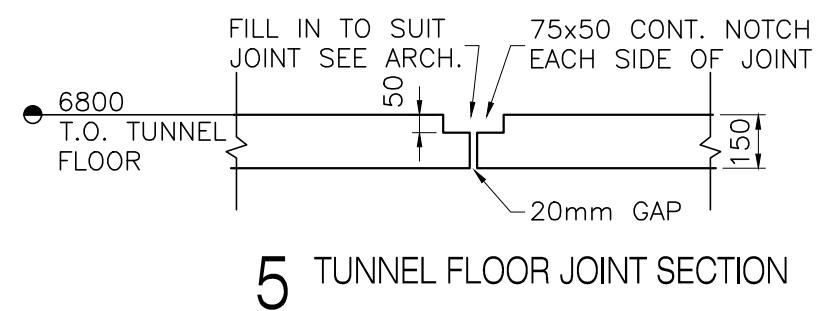
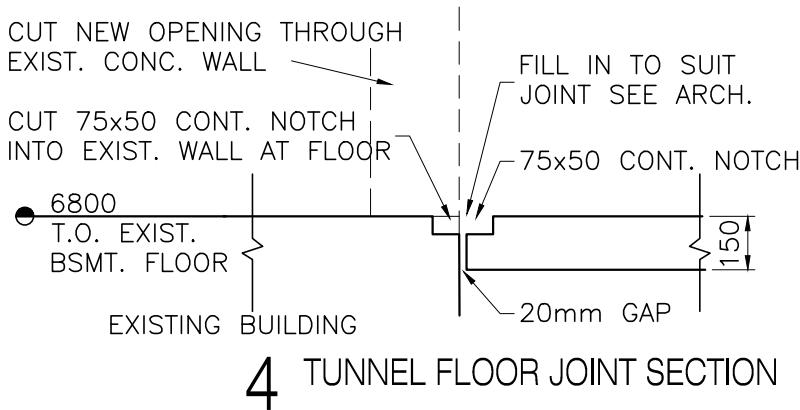
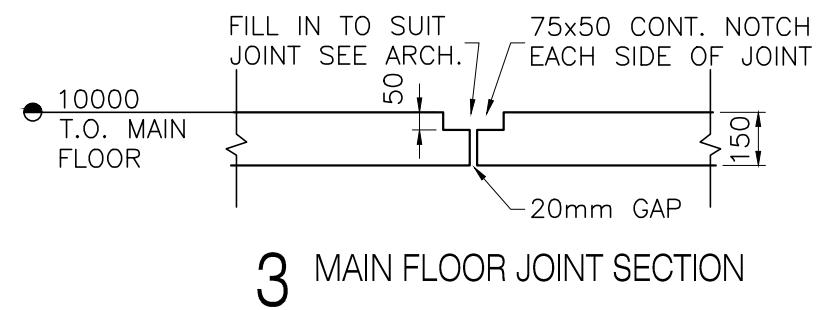
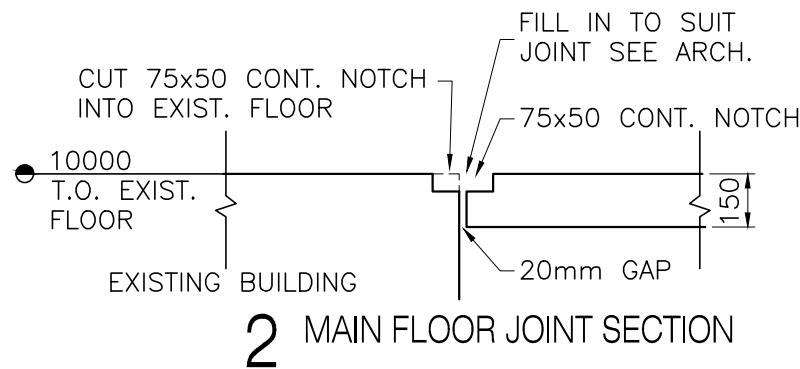
09.038

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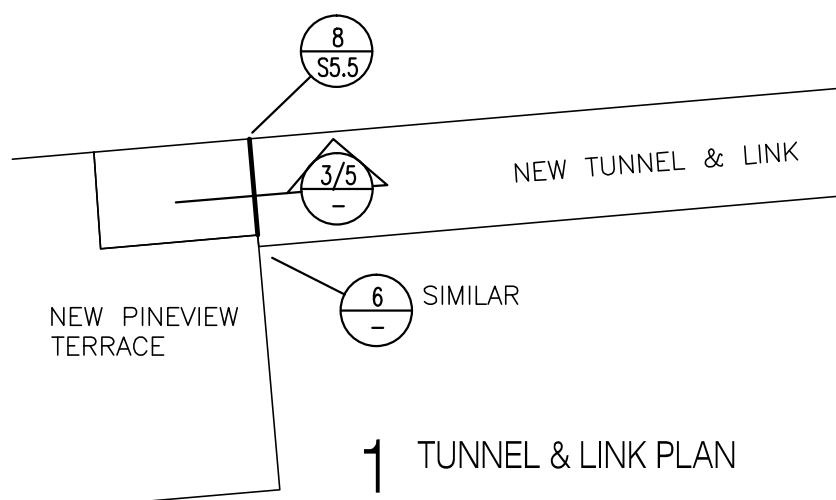
RRM

DWG. NO. :

A6.2-R4



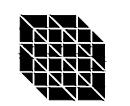
6 VERTICAL CONSTRUCTION JOINT PLAN



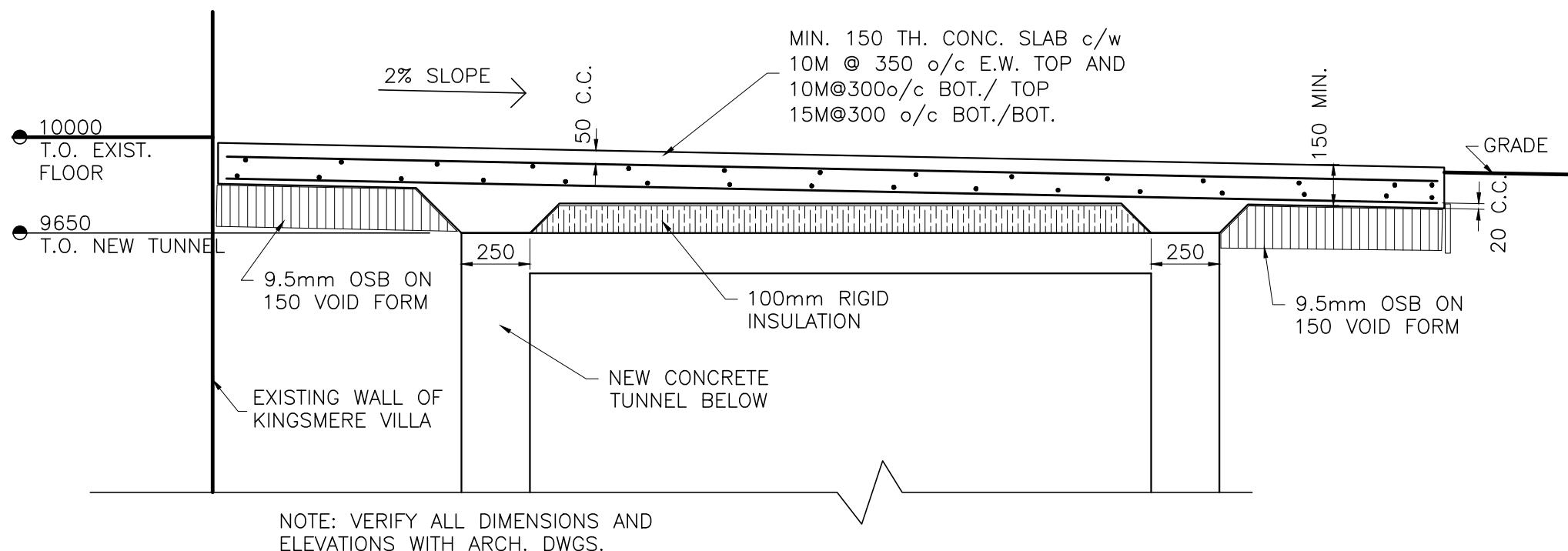
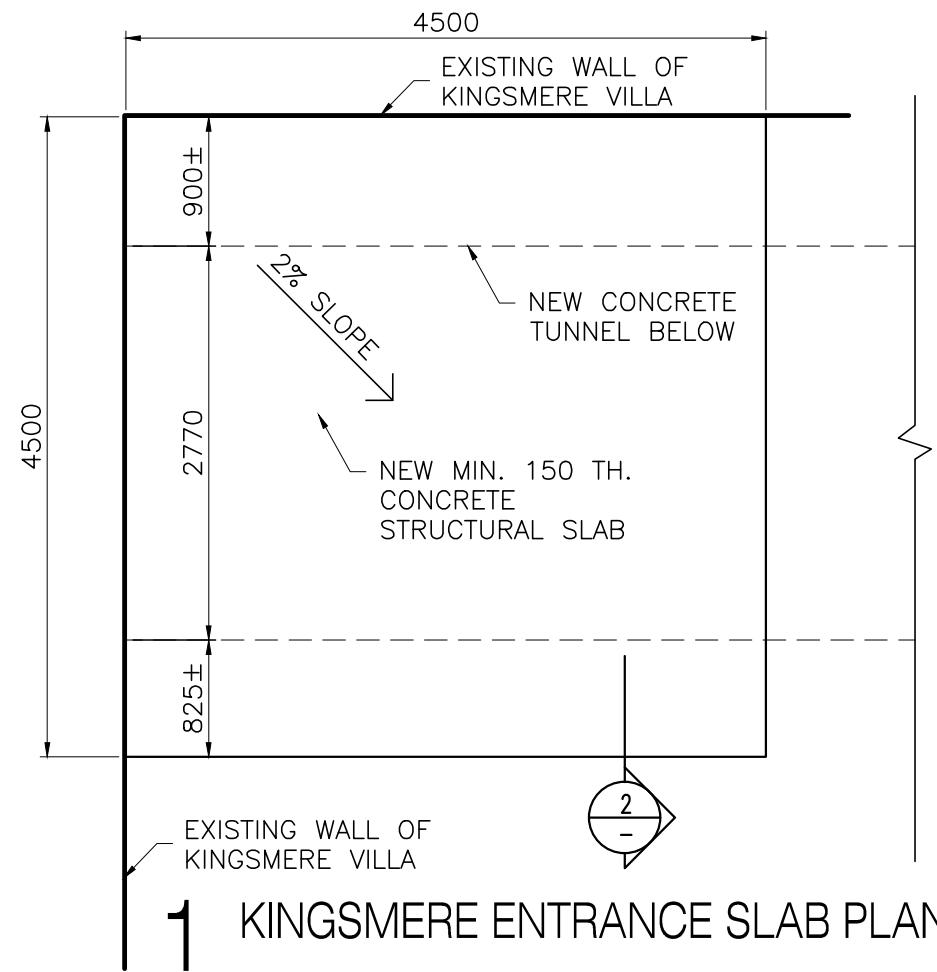
DATE: FEB. 7/12  
PROJ. NO.: 09.098  
DRAWN BY: J.B.  
Dwg. No.: S2.3.3-R1

PROJECT NAME: PINEVIEW TERRACE NURSING HOME  
DRAWING NAME: TUNNEL & LINK TYPICAL EXPANSION AND CONSTRUCTION JOINT DETAILS  
Prince Albert, Sk

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STRUCTURAL ENGINEERS  
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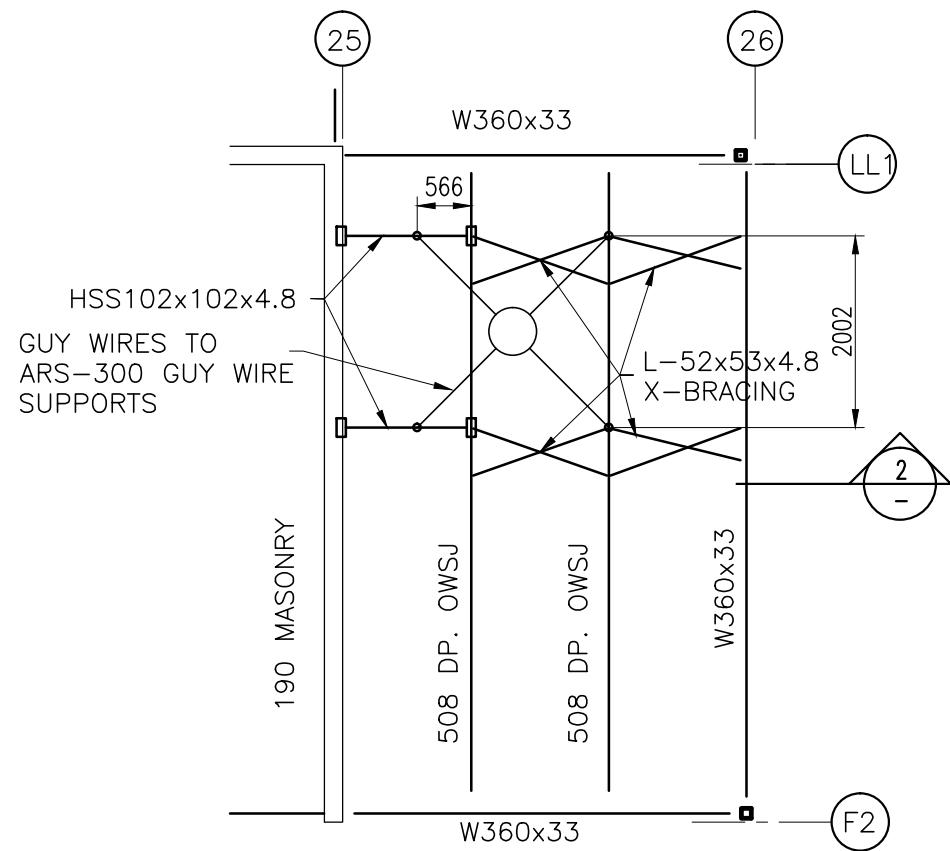
PROJ. NO.: 09.038

DRAWN BY: J.B.

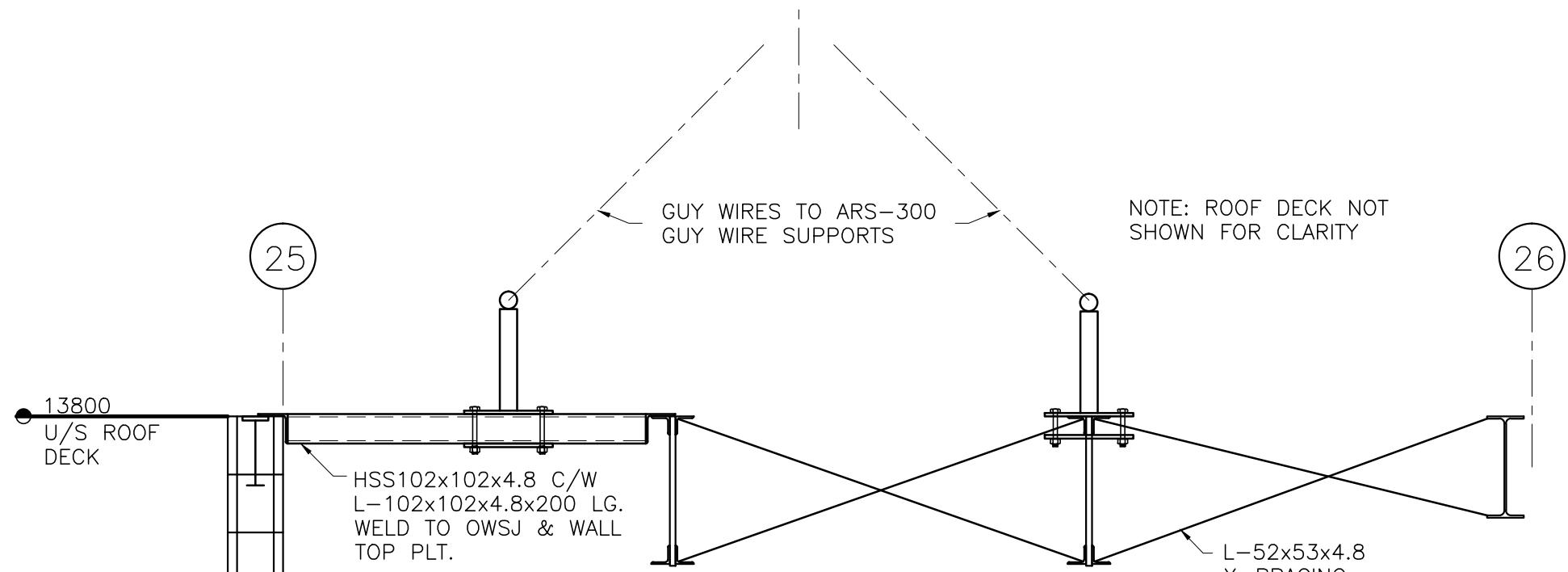
DWG. NO.: S2.3.3-R2

PROJECT NAME: PINEVIEW TERRACE LODGE NURSING HOME

DRAWING NAME: ENTRANCE SLAB AT KINGSMERE VILLA



## 1 EXHAUST GUY WIRE SUPPORT PLAN



## 2 EXHAUST GUY WIRE SUPPORT SECTION

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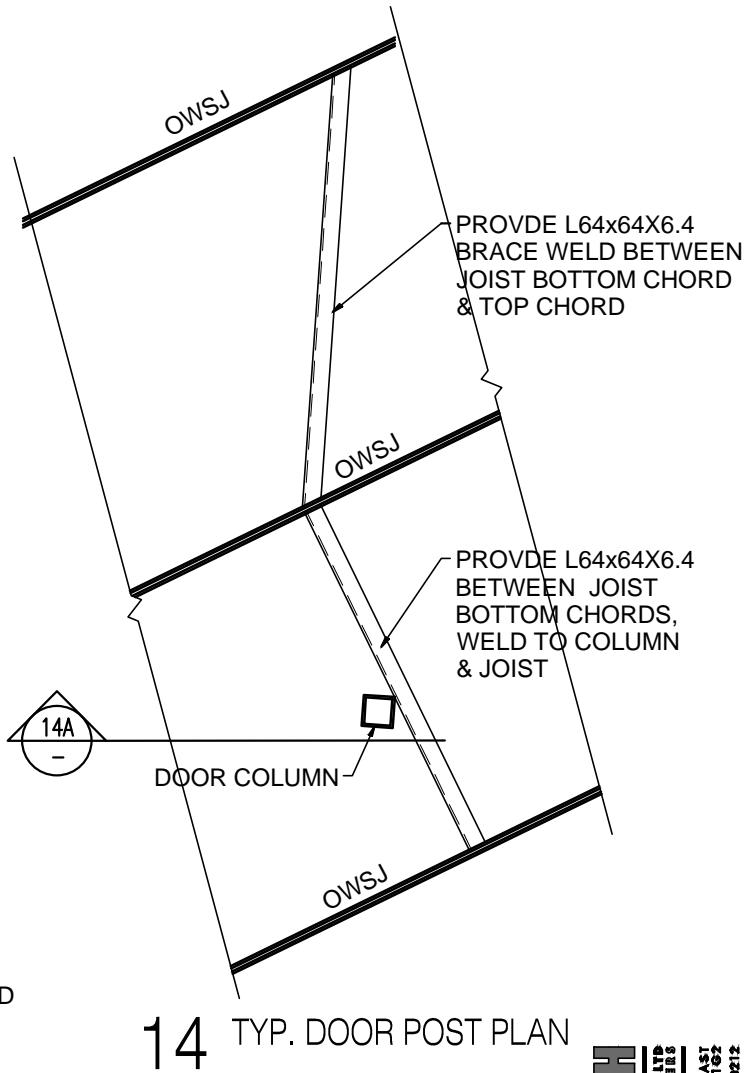
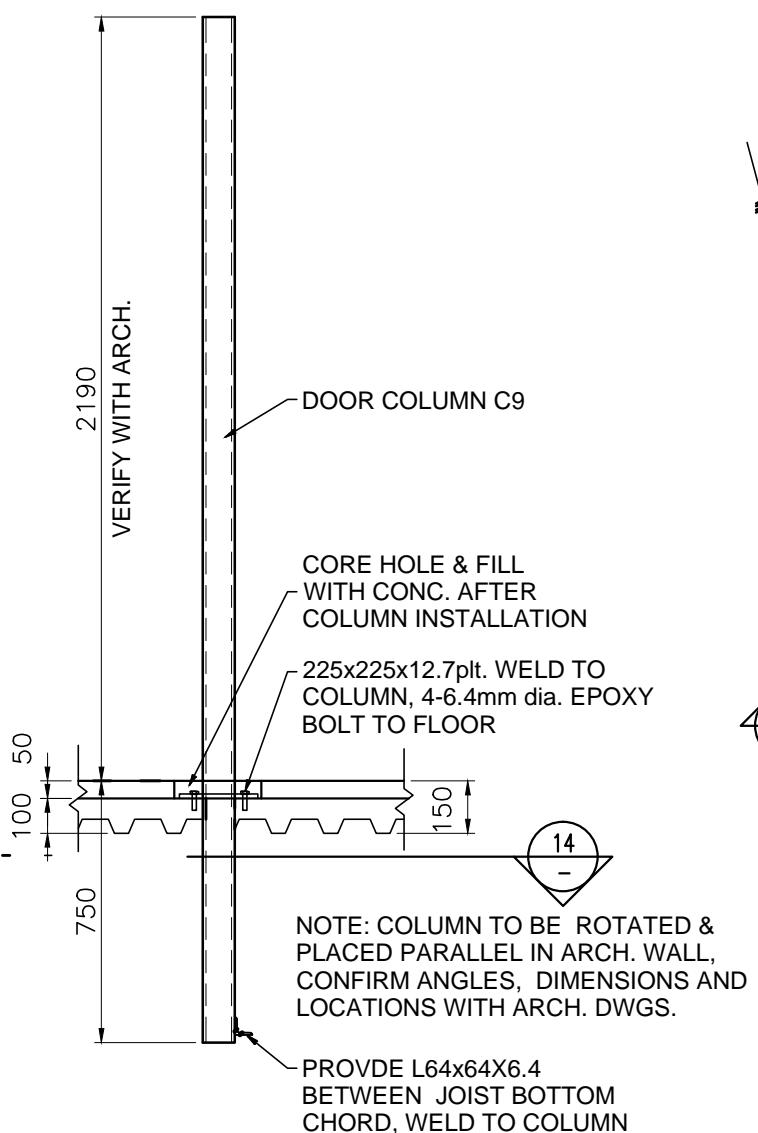
202-2111th St E  
Prince Albert, SK  
S6B 2Z5  
306.922.5101  
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PINEVIEW TERRACE LODGE NURSING HOME  
Prince Albert, SK

DRAWING NAME: GENERATOR EXHAUST GUY WIRE SUPPORT

FEB. 7/12      09.038      J.B.  
PROJ. NO.:      DRAWN BY:      DWG. NO.:

S2.4.3-R1



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S6A 0C9  
306.922.2101

PROJECT NAME: PINEVIEW TERRACE LODGE NURSING HOME

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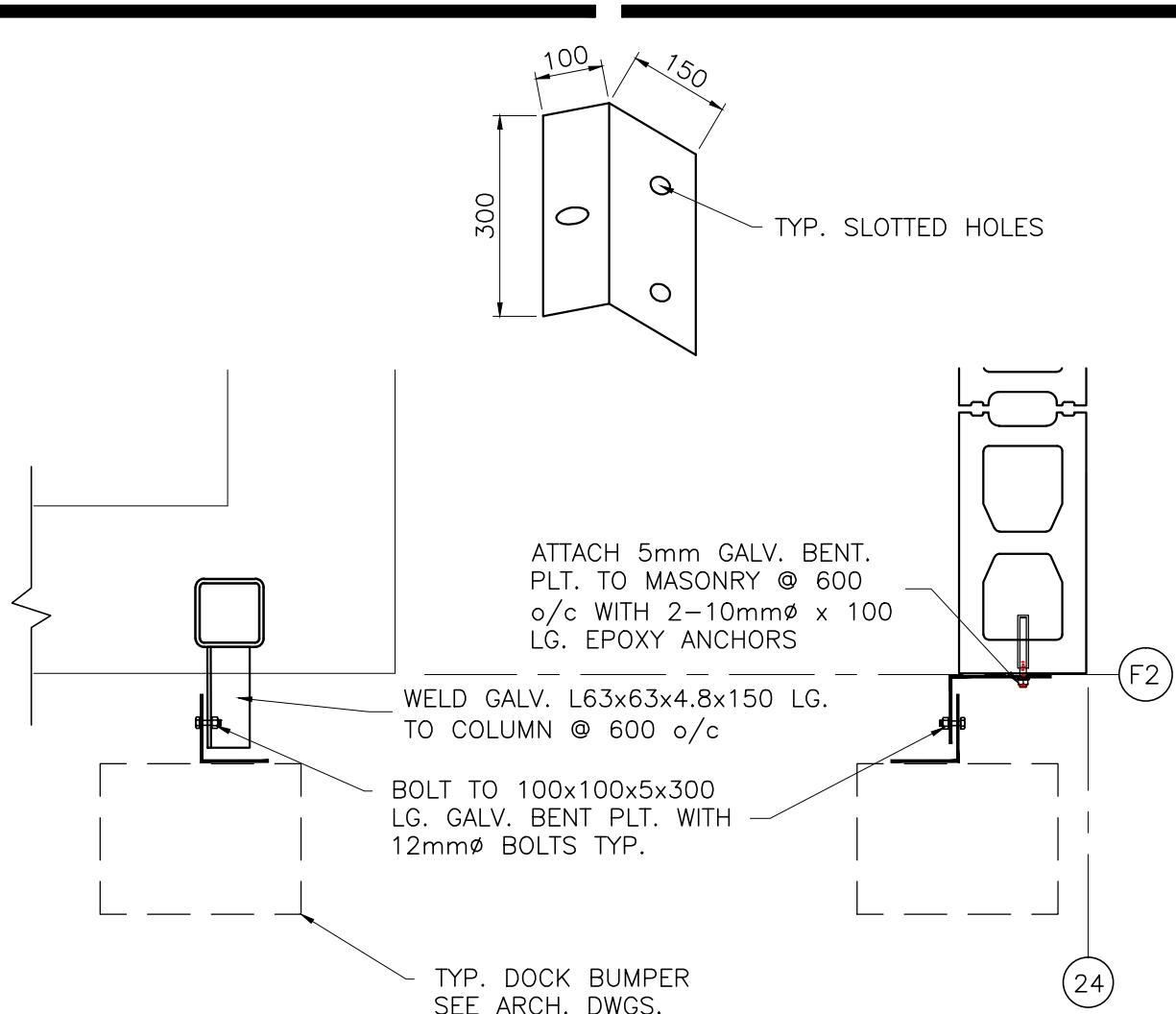
DRAWING NAME: TYPICAL DOOR COLUMN REVISION

DATE: FEB. 7/12

PROJ. NO.: 09.038

DRAWN BY: J.B.

DWG. NO.: S5.2-R1



## 21 DOCK SEAL SUPPORT PLAN DETAIL

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202 - 21 11th St E  
Prince Albert, SK  
S6A 1G2  
306.922.5101

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PROJECT NAME :  
PINEVIEW TERRACE LODGE NURSING HOME

Prince Albert, SK

DRAWING NAME :  
DOCK SEAL SUPPORT REINFORCING

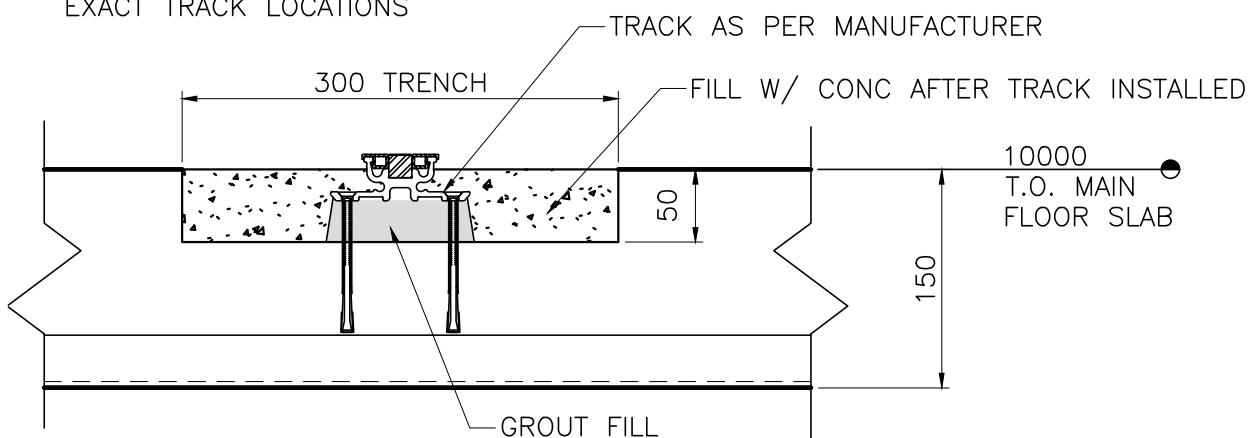
DATE :  
FEB. 7/12

PROJ. NO. :  
09.038

DRAWN BY :  
J.B.

DWG. NO. :  
S5.2-R2

NOTE:  
REFER TO ARCH DWGS FOR  
EXACT TRACK LOCATIONS



## 22 FLOOR TRACK SECTION

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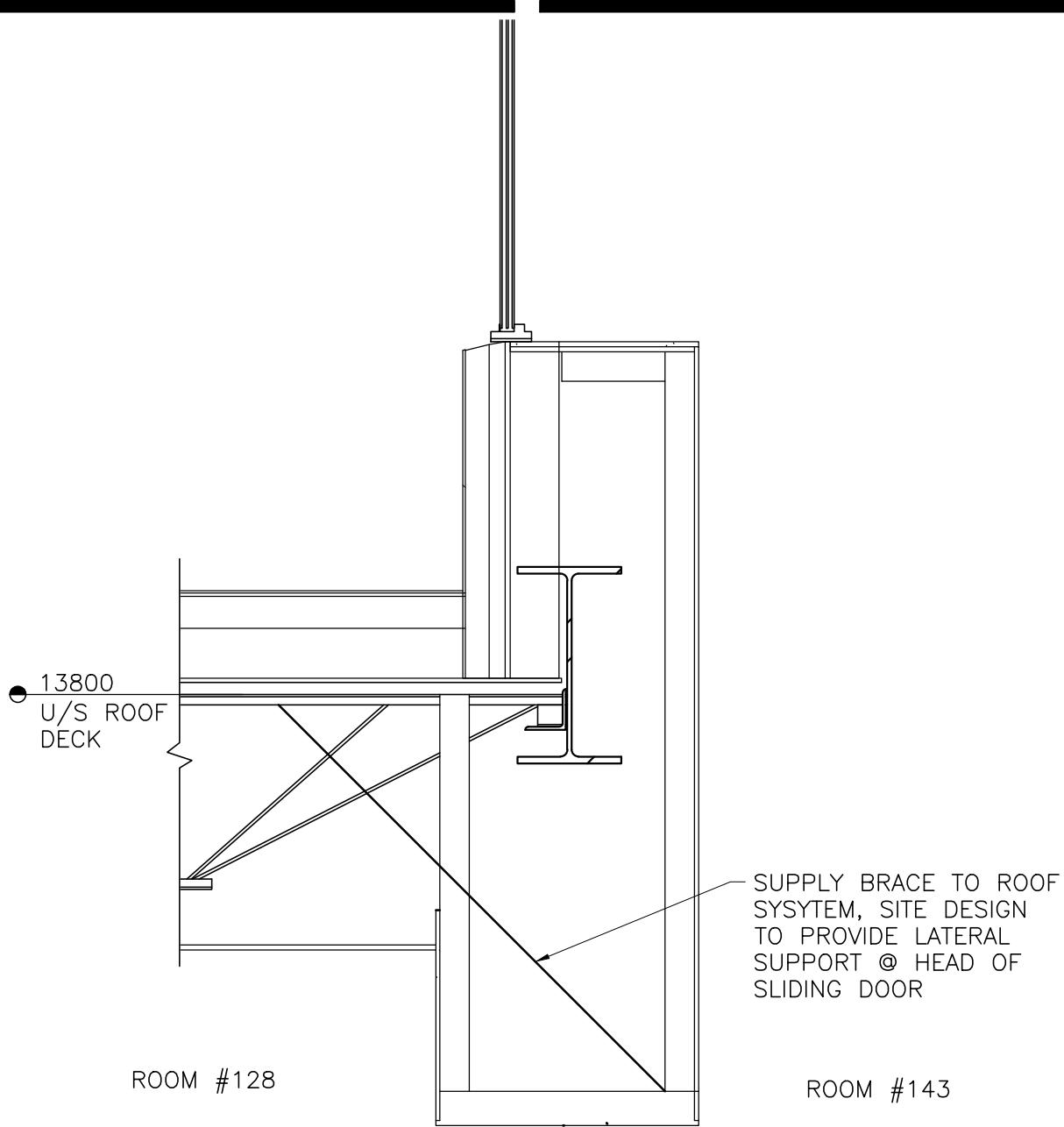
205 Ave D North      202 - 21 11th St E  
Saskatoon, SK      Prince Albert, SK  
S7L 1M7      S6V 0Z8  
306.244.5101      306.922.5101  
[www.aodbt.com](http://www.aodbt.com)

PROJECT NAME :  
PINEVIEW TERRACE LODGE NURSING HOME

Prince Albert, SK

DRAWING NAME :  
ROLLING PANEL TRACK DETAIL

DATE : FEB. 7/12  
PROJ. NO. : 09.038  
DRAWN BY : J.B.  
DWG. NO. : S5.2-R3



## 26 SLIDING DOOR HEAD BRACING

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PROJECT NAME :  
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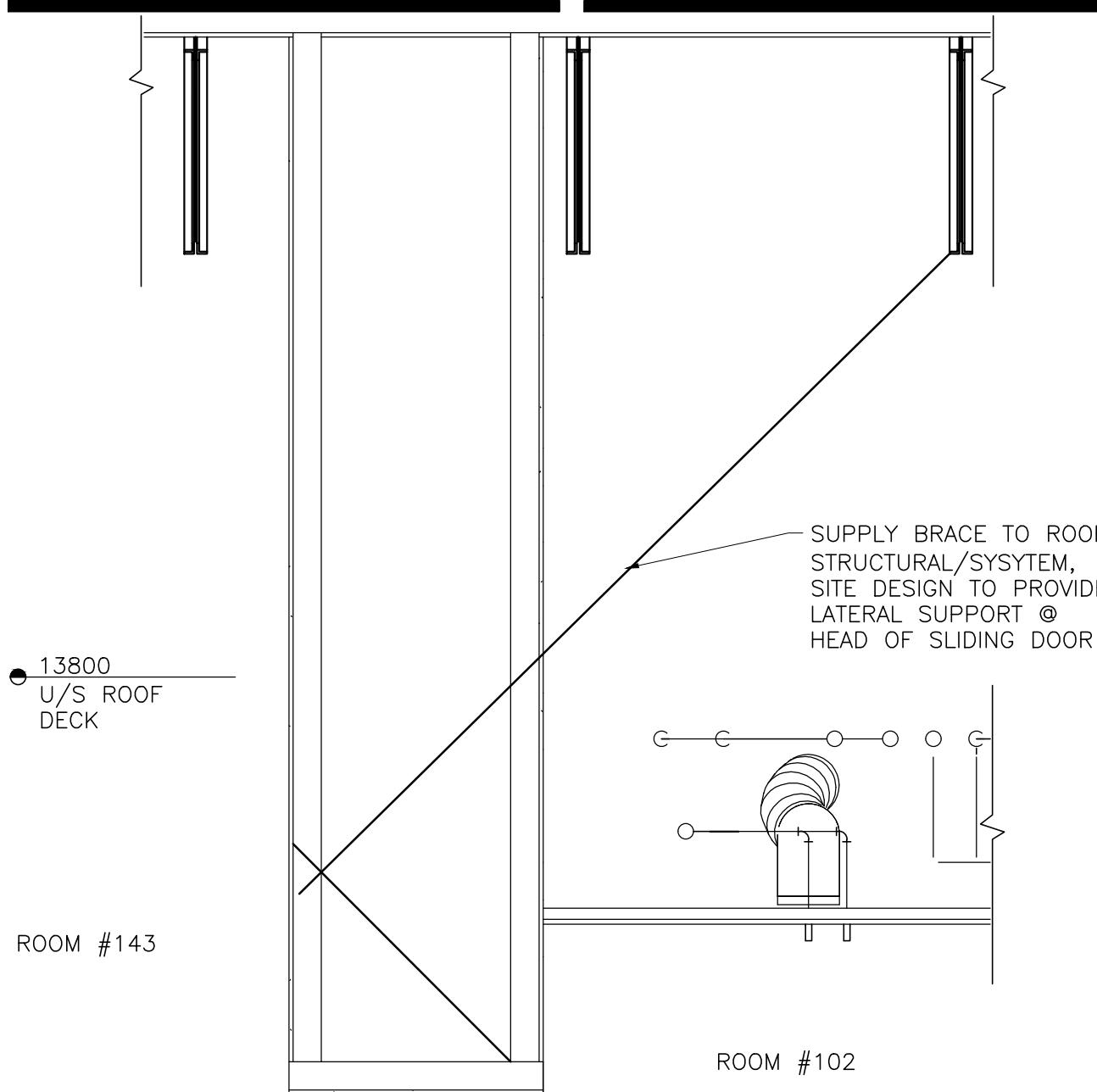
DRAWING NAME :  
SLIDING DOOR HEAD BRACING SECTION

DATE :  
FEB. 7/12

PROJ. NO. :  
09.038

DRAWN BY :  
J.B.

DWG. NO. :  
S5.3-R1



## 27 SLIDING DOOR HEAD BRACING

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Prince Albert, SK

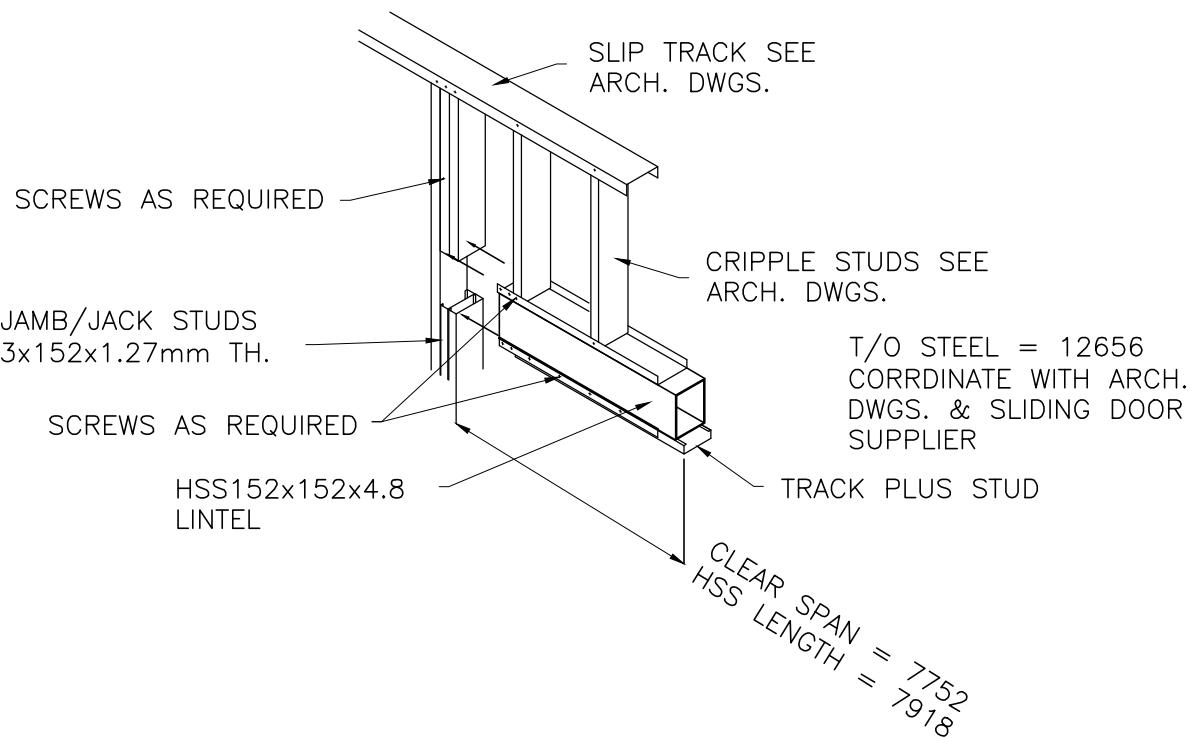
DRAWING NAME :  
SLIDING DOOR HEAD BRACING SECTION

DATE :  
FEB. 7/12

PROJ. NO. :  
09.038

DRAWN BY :  
J.B.

DWG. NO. :  
S5.3-R2



## 28 SLIDING DOOR HEAD BRACING

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S7L 1M7  
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202 - 21 11th St E  
Prince Albert, SK  
S6V 0Z8  
306-922-5101

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PROJECT NAME :  
PINEVIEW TERRACE LODGE NURSING HOME

Prince Albert, SK

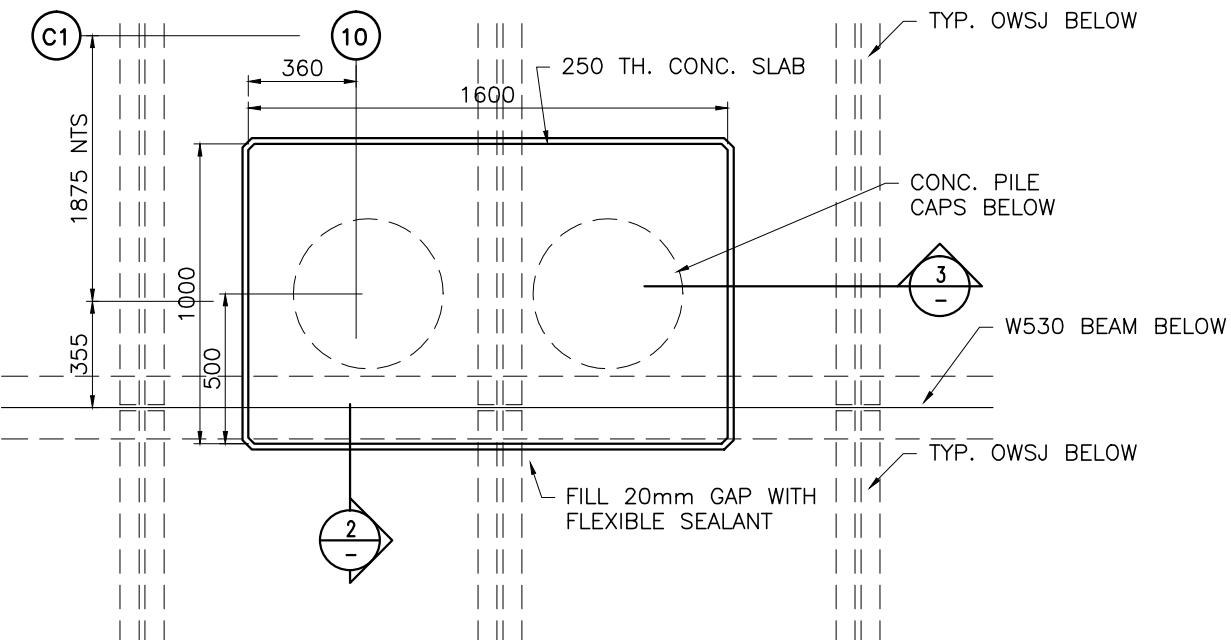
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SLIDING DOOR HEAD BRACING SECTION

DATE :  
FEB. 7/12

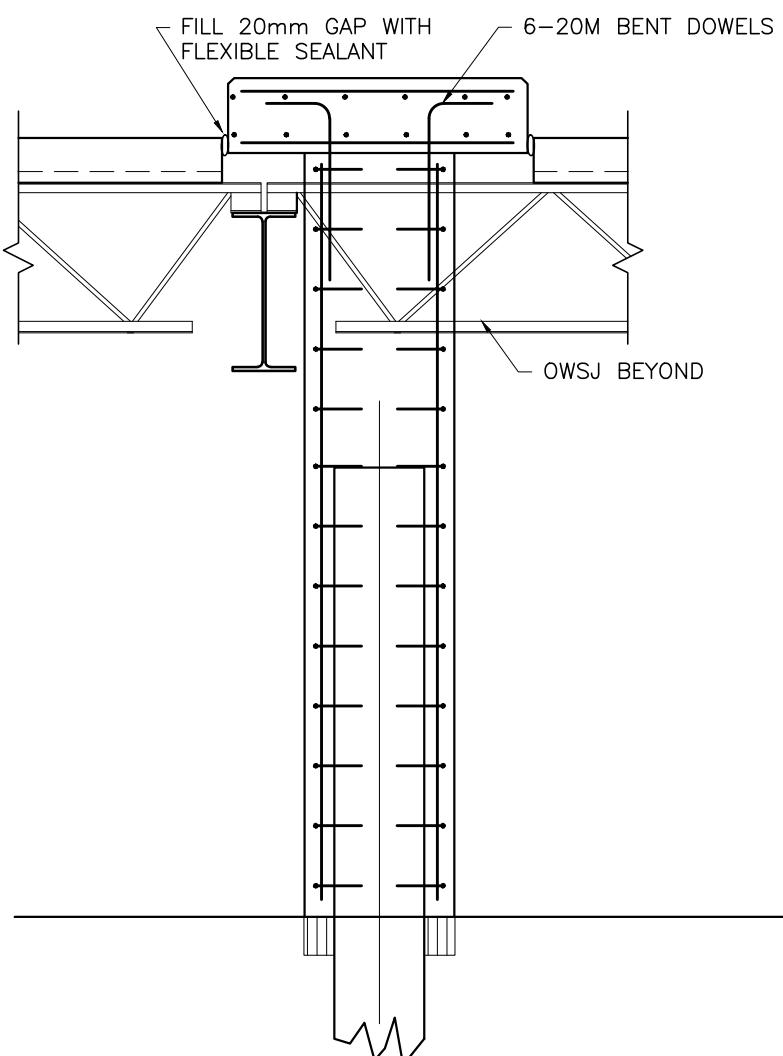
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09.038

DRAWN BY :  
J.B.

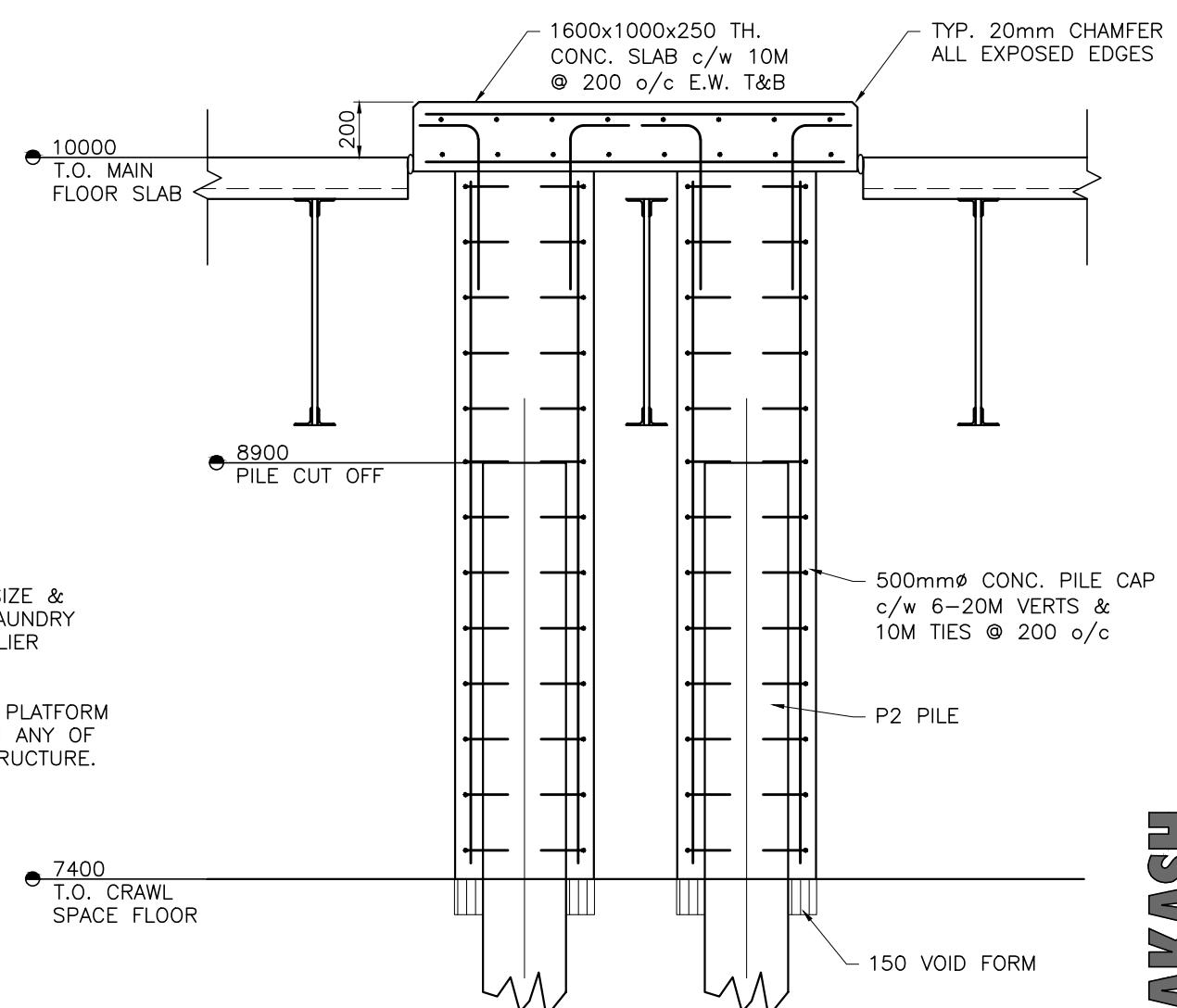
DWG. NO. :  
S5.3-R3



1 LAUNDRY EQUIPMENT PLATFORM PLAN



2 LAUNDRY EQUIPMENT PLATFORM SECTION



3 LAUNDRY EQUIPMENT PLATFORM SECTION

**PRAKASH**

PRakash Consulting Ltd  
Structural Engineers

#4-210 15TH STREET EAST  
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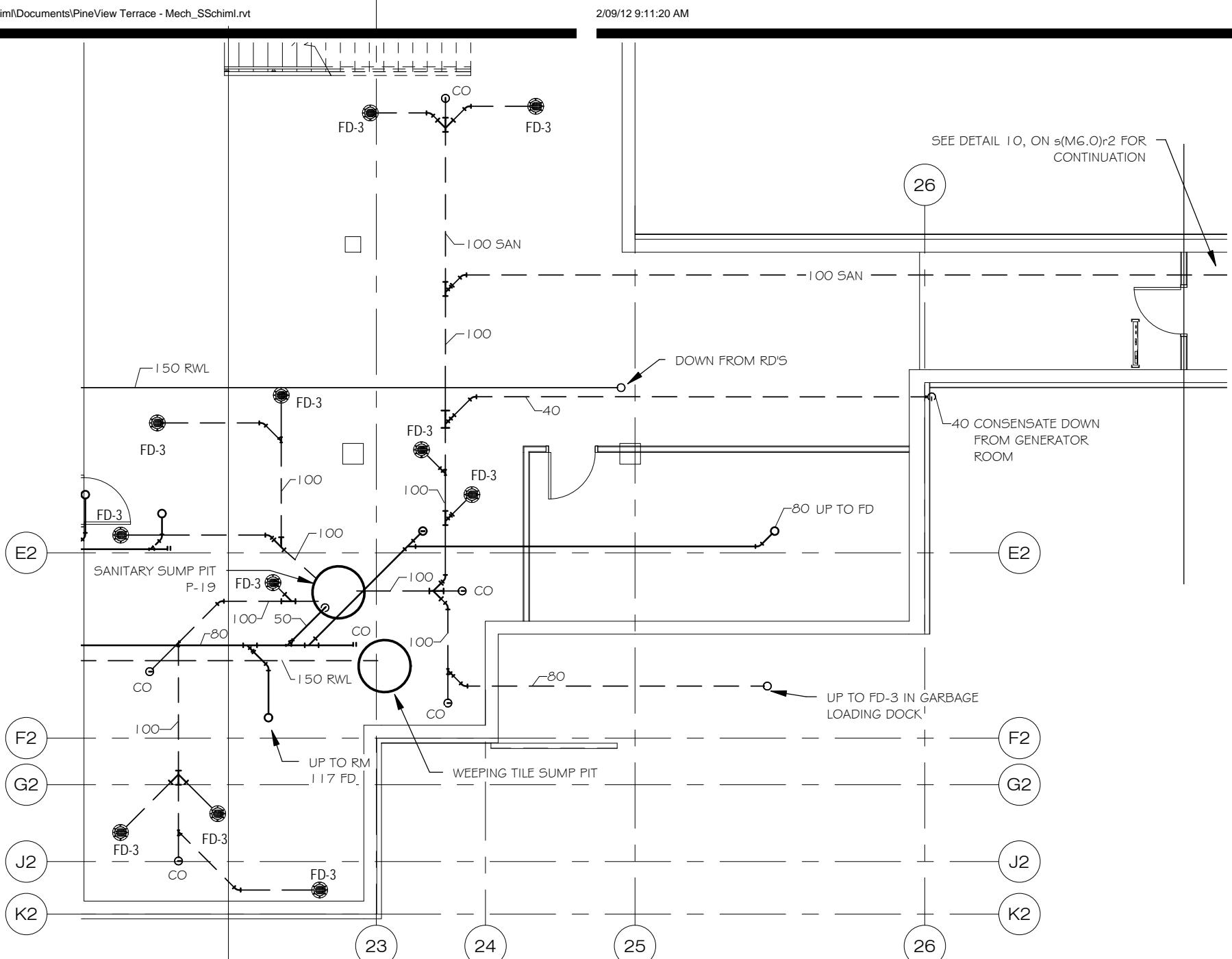
www.acbcl.com  
22A 15th Street East  
Prince Albert, SK  
S6V 1G2  
T 306 922 5101

PROJECT NAME :  
PINEVIEW TERRACE LODGE NURSING HOME

DRAWING NAME :  
Prince Albert, SK

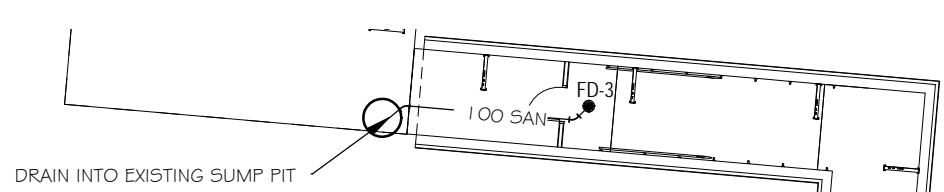
DRAWING NAME :  
LAUNDRY EQUIPMENT PLATFORM

DATE : FEB. 7/12  
PROJ. NO. : 09.038  
DRAWN BY : J.B.  
DWG. NO. : S5.5-R2



9 Partial Basement/Crawlspace Plumbing - East

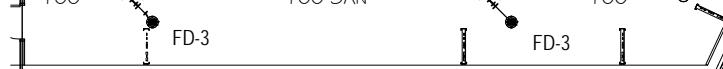
1 : 100



10 Tunnel FD Piping

1 : 200

SEE DETAIL 9, ON s(M6.0)r2 FOR CONTINUATION



PROJECT NAME:

- PINEVIEW TERRACE LODGE NURSING HOME  
- PRINCE ALBERT, SK  
-

DRAWING NAME:

MECHANICAL ROOM/TUNNEL FD PIPING

DATE:

FEB 2012

PROJ. NO.:

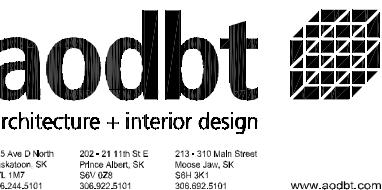
09038

DRAWN BY:

S.S.

DWG. NO.

s(M6.0)r2

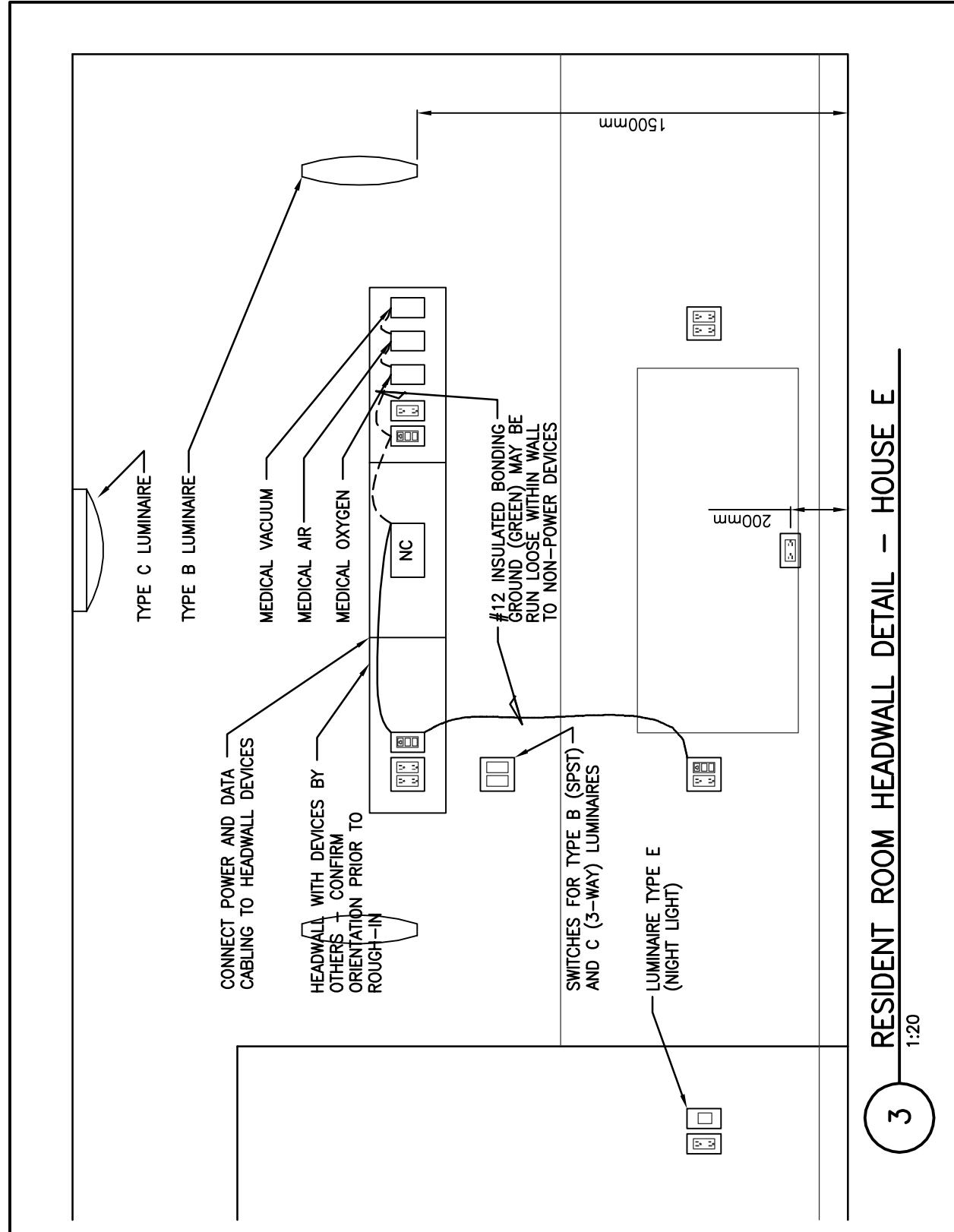


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PROJECT NAME :  
PINEVIEW TERRACE LODGE NURSING HOME

Prince Albert, SK

DRAWING NAME :  
RESIDENT ROOM HEADWALL DETAIL

DATE :  
09 FEB 2012

PROJ. NO. :  
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